1963 AND 1964 REPORT OF ALFALFA NURSERIES EASTERN ALFALFA IMPROVEMENT CONFERENCE

Conducted cooperatively by the various
State Agricultural Experiment Stations
and
The United States Department of Agriculture,
Agricultural Research Service, Forage and Range
Research Branch, in Eastern United States

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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Crops Research Division

CR-30-65

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1963 and 1964
REPORT OF ALFALFA NURSERIES
EASTERN ALFALFA IMPROVEMENT CONFERENCE

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INTRODUCTION

This is the seventh Alfalfa Nurseries Report of the Eastern Alfalfa Improvement Conference, consisting primarily of performance data on alfalfa varieties and breeding material.

Data for two years are combined in this report. This is a progress report which contains findings that may or may not be verified in subsequent experiments. Therefore, data reported and statements contained herein do not constitute publication. For this reason, citation to any part of this report should not be made without prior permission from the agency(s) or workers(s) concerned.

ALABAMA - Belle Mina

Table 1. Forage yield of alfalfa varieties at Tennessee Valley Substation, 1963.

Entry	Pounds of oven dry forage per acre			
	April 24	June 7	July 17	Total
1. Vernal	2146	4331	1621	8098
2. Williamsburg	1535	3693	1529	6757
3. Stoneville P.C. 1	1627	3405	1657	6689
4. Buffalo	1520	3586	1577	6683
5. Alfa (Scandia)	1672	3586	1401	6659
6. Socheville	1407	3607	1507	6521
7. Pfister FD-100	1312	3499	1531	6342
8. DuPuits	1284	3525	1350	6159
9. Tourneur 501	1189	3305	1230	5724

Date Planted: September 13, 1961.

Soil: Decatur clay

Fertilizer: 1000 lb/acre 0-14-14 in early spring.

Replications: 4, randomized block design.

Plot size: 5' x 20', harvest area 3' x 20'

Table 2. Main Alfalfa Variety Yield Trial - 1963

Location: Block 37, Agronomy Farm, Fayetteville, Arkansas.
Design: Randomized block; 4 replications.
Established: September 20, 1956 on Waynesboro silt loam soil.
Soil Treatment: 40-80-80 fertilizer and 2 tons lime per acre at time of seeding. Topdressed with 25-50-100 fertilizer per acre on February 28, 1957, 0-30-60 fertilizer per acre on March 21, 1958, 0-60-30 fertilizer per acre on February 27, 1959, 0-100-150 fertilizer and 20 pounds of boron per acre on March 23, 1960, 0-60-180 fertilizer and 20 pounds of boron per acre on February 17, 1961, 0-100-150 fertilizer and 20 pounds boron per acre on January 30, 1962, and 0-100-150 fertilizer and 20 pounds of boron per acre on February 6, 1963.
Plot Size: 5 feet by 20 feet.
Seeding Rate: 20 pounds of live, pure seed per acre broadcast.
Harvested: 5 times (May 8, June 11, July 10, August 13, and October 29, 1963).

Variety	Hay yield in tons per acre (12% moisture) 1st cut	2nd cut	3rd cut	4th cut	5th cut	Total 1963	7-yr.ave. 57-63	Stand 1/	Percent leaves 2/ 1963	7-yr.ave. 57-63	Spring vigor 3/
Dupuits F.C. 24697	.67	.57	.46	.29	.12	2.11	3.68	35	59.7	51.8	4.0
Canadian Sc. Ms. 531	.33	.24	.30	.18	.12	1.17	2.52	20	60.1	56.2	7.8
Lahantan	.94	.86	.64	.50	.11	3.05	3.74	56	57.6	50.8	4.0
Indiana Syn"F" F.C. 33188	.98	.69	.52	.36	.17	2.72	3.85	55	63.9	55.0	6.0
New Mexico 11-1 F.C. 33209	.74	.65	.54	.40	.16	2.49	4.05	42	53.9	49.5	5.1
Buffalo F.C. 32984	.75	.72	.58	.40	.18	2.63	4.14	59	54.2	51.3	5.0
Socheville P.I. 224623	.64	.68	.53	.34	.16	2.35	4.15	44	58.0	51.1	4.3
N.C. Syn. B(51)7 F.C. 32644	.79	.69	.54	.38	.15	2.55	4.22	44	57.8	50.7	4.8
Williamsburg F.C. 33204	.53	.64	.60	.37	.19	2.33	4.14	43	56.1	49.6	5.0
Caliverde F.C. 32594	.48	.43	.42	.27	.11	1.71	3.41	33	60.6	50.7	4.8
Vernal F.C. 31983	.77	.84	.64	.39	.22	2.86	4.36	62	59.9	53.6	5.8
Atlantic F.C. 33492	.59	.60	.48	.30	.15	2.12	3.77	39	61.9	51.4	5.4
L.S.D. at .05 level	.18	.16	.12	.07	N.S.	.44		14	5.5		
L.S.D. at .01 level	.25	.22	.16	.09	N.S.	.59		19	N.S.		
C.V.	18.7%	17.9%	15.6%	13.5%	31.2%	13.0%		22.4%	6.5%		

1/ Stand counts were made by the point quadrat method on May 21, 1963. One hundred points were counted per 5' x 20' plot 13 days after first cutting was made. Stand based on number of hits per 100 points.

2/ Percent leaves based on samples of 40 stems per plot. Samples harvested on June 11, 1963.

3/ Spring vigor scores based on scale of 1 to 9; 1 = high vigor, 9 = low vigor. Scored on April 4, 1963.

Table 3. Alfalfa "Synthetic" Variety Yield Trial - 1963

Location: Block 37, Agronomy Farm, Fayetteville, Arkansas.
Design: Randomized block; 4 replications.
Established: September 20, 1956 on Waynesboro silt loam soil.
Soil Treatment: 40-80-80 fertilizer and 2 tons lime per acre at time of seeding. Topdressed with 25-50-100 fertilizer per acre on February 28, 1957, 0-30-60 fertilizer per acre on March 28, 1958, 0-60-30 fertilizer per acre on February 27, 1959, 0-100-150 fertilizer and 20 lbs. of boron per acre on March 23, 1960, 0-60-180 fertilizer and 20 lbs. of boron per acre on February 17, 1961, 0-100-150 fertilizer and 20 lbs. of boron per acre on January 30, 1962, and 0-100-150 fertilizer and 20 lbs. of boron per acre on February 6, 1963.
Plot Size: 5 feet by 20 feet.
Seeding Rate: 20 pounds of live, pure seed per acre broadcast.
Harvested: 5 times (May 8, June 11, July 10, August 13, and October 29, 1963).

Variety	Hay yield in tons per acre (12% moisture)							Stand 1/	Percent leaves 2/		Spring vigor 3/
	1st cut	2nd cut	3rd cut	4th cut	5th cut	Total 1963	7-yr.ave. 57-63		1963	7-yr.ave. 57-63	
A-225 Syn.4	.82	.77	.68	.40	.25	2.92	4.13	51	59.3	52.3	5.6
Indiana Syn."F" F.C. 33188	.86	.76	.70	.41	.24	2.97	4.37	44	65.7	53.2	6.0
Vernal F.C. 31983	.80	.73	.66	.40	.27	2.86	4.28	58	64.8	52.5	6.3
A-253 Syn. 1	.84	.63	.55	.35	.23	2.60	4.24	55	66.2	54.0	6.0
Buffalo F.C. 32984	.69	.62	.57	.40	.23	2.51	4.30	42	59.4	50.6	5.0
A-224 Syn. 3	.85	.56	.47	.29	.19	2.36	3.78	42	66.4	54.4	6.8
A-248 (Grandfield)	.86	.64	.55	.36	.19	2.60	4.31	44	64.4	51.5	5.0
A-204 Syn. 4	.78	.53	.49	.30	.14	2.24	4.22	47	65.6	54.5	6.0
A-223 F.C. 24993	.94	.67	.58	.37	.22	2.78	4.20	47	63.4	53.1	5.5
Ranger	.75	.69	.60	.43	.23	2.70	4.02	47	63.4	52.9	5.5
L.S.D. at .05 level	N.S.	N.S.	N.S.	.08	N.S.	N.S.		N.S.	N.S.		
L.S.D. at .01 level	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.		N.S.	N.S.		
C.V.	17.7%	16.5%	18.2%	15.0%	45.0%	13.3%		17.3%	5.5%		

1/ Stand counts were made by the point quadrat method on May 21, 1963. One hundred points were counted per 5' x 20' plot 13 days after first cutting was made. Stand based on number of hits per 100 points.
2/ Percent leaves based on samples of 40 stems per plot. Samples harvested on June 11, 1963.
3/ Spring vigor scores based on scale of 1 to 9; 1 = high vigor, 9 = low vigor. Scored on April 4, 1963.

Table 4. Lower Mississippi Valley Uniform Alfalfa Field Trial #6 - 1963

Location: Northeast Branch Experiment Station, Keiser, Arkansas.
Design: Randomized block; 4 replications.
Established: September 16, 1958 on Sharkey clay loam (medium) soil.
Soil Treatment: 30-60-60 fertilizer per acre at time of seeding. Topdressed with 0-50-100 fertilizer per acre on February 17, 1962.
Plot Size: 5 feet by 20 feet.
Seeding Rate: 20 pounds of live, pure seed per acre broadcast.
Harvested: 4 times: (April 17, May 23, July 5, and August 1, 1963).

Variety	Hay yield in tons per acre (12% moisture)						Stand 1/	Spring vigor 2/
	1st cut	2nd cut	3rd cut	4th cut	Total 1963	5-yr. ave. 59-63		
Stoneville P.C. #1	1.69	.70	1.62	.23	4.24	4.74	56	4.8
Stoneville Buffalo Sel.	1.79	.69	1.62	.17	4.27	4.68	64	4.5
Buffalo	1.81	.79	1.57	.18	4.35	4.91	60	5.0
N.C. Syn. AB(57)	1.63	.67	1.74	.19	4.23	4.72	57	5.3
N.C. Syn. A(51)5	1.64	.88	1.85	.26	4.63	5.18	59	4.5
N.C. Syn. D(51)12	1.66	.70	1.66	.14	4.16	4.47	61	4.8
N.C. Syn. B(51)7	1.65	.72	1.75	.17	4.29	4.99	63	4.3
Ranger	1.58	.61	1.78	.13	4.10	4.88	61	6.3
Kansas Syn. B_1(Cody)	1.81	.82	1.71	.23	4.57	4.65	56	4.8
Lahontan	1.64	.78	1.59	.25	4.17	4.61	67	5.0
Rhizoma	1.44	.64	1.60	.21	3.89	4.36	64	7.0
Vernal	1.61	.58	1.58	.12	3.89	4.73	66	5.8
L.S.D. at .05 level	N.S.	N.S.	N.S.	N.S.	N.S.		N.S.	
L.S.D. at .01 level	N.S.	N.S.	N.S.	N.S.	N.S.		N.S.	
C.V.	15.3%	26.6%	15.7%	56.2%	13.9%		11.3%	

1/ Stand counts were made by the point quadrat method on April 30, 1963. One hundred points were counted per 5' x 20' plot 13 days after first cutting was made. Stand based on number of hits per 100 points.

2/ Spring vigor scores based on scale of 1 to 9; 1 = high vigor, 9 = low vigor. Scored on April 8, 1963.

Table 5. Lower Mississippi Variety Uniform Alfalfa Variety Yield Trial #10 - 1963

Location: Northeast Branch Experiment Station, Keiser, Arkansas.
Design: Randomized block; 4 replications.
Established: March 19, 1962 on Sharkey clay - loamy sand, overwash, undulating (mixed) soil.
Soil Treatment: None.
Plot Size: 5 feet by 20 feet.
Seeding Rate: 20 pounds of live, pure seed per acre broadcast.
Harvested: 4 times (April 17, June 5, July 2, and August 1, 1963).

Variety	Hay yield in tons per acre (12% moisture)						Stand 1/	Spring vigor 2/
	1st cut	2nd cut	3rd cut	4th cut	Total 1963	2-yr.ave. 62-63		
Uinta	1.21	2.16	1.13	.55	5.05	4.21	71	5.3
Lahontan	.78	1.78	1.22	.76	4.52	3.81	66	5.0
Stoneville P.C. #1	1.44	1.58	1.17	.65	4.84	4.04	72	4.0
Rhizoma	.96	1.78	1.20	.53	4.47	3.98	67	5.8
Culver	1.53	2.41	1.16	.54	5.64	4.42	72	5.3
Cherokee	1.33	2.07	1.31	.57	5.28	4.32	65	4.5
Arkansas Syn. P-2	1.26	2.50	1.42	.53	5.71	4.38	65	6.0
Cayuga	1.35	2.01	1.24	.55	5.15	4.34	68	4.8
Buffalo	1.33	1.80	.92	.70	4.75	4.07	68	5.0
Vernal	1.42	2.20	1.35	.52	5.49	4.52	68	5.0
Cody	1.13	1.90	1.38	.66	5.07	4.19	66	4.8
Ranger	1.48	1.75	1.54	.59	5.36	4.29	68	5.0
L.S.D. at .05 level	.23	.27	N.S.	N.S.	.65		5	
L.S.D. at .01 level	.32	.47	N.S.	N.S.	.87		N.S.	
C.V.	12.8%	9.3%	24.6%	17.5%	8.8%		5.2%	

1/ Stand counts were made by the point quadrat method on April 30, 1963. One hundred points were counted per 5' x 20' plot 13 days after first cutting was made. Stand based on number of hits per 100 points.

2/ Spring vigor scores based on scale of 1 to 9; 1 = high vigor, 9 = low vigor. Scored on April 8, 1963.

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Table 6. Experiment #65

Alfalfa varieties - yield TDM/A
Randomized Block Design — Six Replications
Seeded August 29, 1960 — Plot Size 5'x 16'

Variety	1963 Harvests 5/20	6/26	8/15	9/23	Total 1963	Total 1962	Total 1961	3-yr Ave
Atlantic	1.66	1.12	1.46	0.67	4.91	5.29	4.48	4.90
Buffalo	1.84	1.33	1.58	0.77	5.52	5.53	4.63	5.23
Lahonton	1.58	1.44	1.15	0.64	4.81	4.44	4.06	4.44
Narragansett	1.71	1.26	1.60	0.75	5.32	5.74	5.31	5.46
Ranger	1.68	1.28	1.61	0.69	5.26	5.13	4.10	4.83
Vernal	1.86	1.25	1.58	0.71	5.40	5.58	4.74	5.24
Cardinal	1.67	1.20	1.43	0.60	4.90	5.30	5.20	5.13
Orchies	1.83	1.30	1.46	0.67	5.26	5.37	5.50	5.38
FD-100	1.89	1.25	1.56	0.72	5.42	5.56	5.14	5.37
N.C.E.58	1.71	1.13	1.71	0.81	5.36	5.62	5.00	5.33
N.C.G.(57)3	1.85	1.30	1.47	0.70	5.32	5.33	5.20	5.29
Alfa	1.71	1.23	1.42	0.64	5.00	5.46	5.30	5.25
DuPuits	1.73	1.27	1.35	0.54	4.89	5.35	5.07	5.10
Maopa	1.28	1.08	1.14	0.53	4.03	4.78	2.99	3.93
Rambler	1.11	0.76	0.87	0.39	3.13	3.62	3.27	3.34
Teton	1.32	1.04	1.36	0.58	4.30	4.79	3.86	4.31
Williamsburg	1.63	1.20	1.63	0.80	5.26	5.46	4.85	5.19
Glacier	1.63	1.12	1.62	0.73	5.10	5.00	5.51	5.21
Maliani	1.52	1.36	1.43	0.76	5.07	4.88	4.27	4.74
N.C.F.(51)1	1.81	1.30	1.48	0.68	5.27	5.41	5.44	5.37
N.C.G.(57)2	1.93	1.25	1.66	0.77	5.61	5.56	5.32	5.50
Cherokee	1.56	1.09	1.48	0.67	4.80	5.64	5.09	5.17
N9-502	1.87	1.36	1.48	0.62	5.33	5.73	4.82	5.30
N9-503	1.68	1.29	1.64	0.57	5.18	5.44	4.51	5.38
Cardinal (NK)	1.69	1.13	1.48	0.62	4.92	4.86	4.98	4.92
N9-500	1.93	1.45	1.41	0.71	5.50	5.42	4.82	5.25
N9-504	1.88	1.27	1.56	0.71	5.42	5.69	4.44	5.19
DuPuits (NK)	1.80	1.25	1.51	0.66	5.22	5.68	5.15	5.35
LSD .05	0.26	0.17	0.21	0.09	0.50	0.48	0.42	0.33
.01	0.34	0.23	0.28	0.12	0.66	0.62	0.54	0.43
C.V.%	13.4	12.2	12.4	11.7	8.6	12.3	13.1	9.8
Interactions, etc.								
Harvests	-	-	-	-	**	**	**	-
Harvest x variety		-	-	-	NS	**	**	-
years	-	-	-	-	-	-	-	**
years x variety	-	-	-	-	-	-	-	**

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Table 7. Alfalfa Varieties-Performance data, Experiment #65

Randomized Block Design — Six Replications
Seeded August 29, 1960 — Plot Size 5'x 16'

Rating scale, 1 to 9 with 1=least and 9=most.

Variety	Leaf hopper damage		% Stand			Frost dama
	7/11/61	8/15/63	9/26/60	4/4/61	9/20/63	11/16/60
Atlantic	6.7	4.3	95	94	58	6.7
Buffalo	4.7	5.7	96	94	73	5.3
Lahonton	9.0	7.7	91	90	60	5.7
Narragansett	3.3	4.7	92	92	73	3.3
Ranger	8.7	5.0	97	91	69	7.3
Vernal	4.7	3.7	89	88	73	3.7
Cardinal	4.3	6.3	78	77	38	1.7
Orchies	4.7	6.7	93	93	54	3.3
FD-100	4.7	6.3	98	98	55	2.3
N.C.E.58	1.3	2.3	87	88	77	1.3
N.C.G.(57)3	5.3	6.0	97	95	60	2.7
Alfa	5.0	7.0	94	96	48	1.7
DuPuits	5.0	6.0	94	96	36	1.3
Maopa	9.0	7.0	92	78	28	5.7
Rambler	8.3	5.0	90	78	12	7.7
Teton	7.7	3.3	93	86	46	7.0
Williamsburg	4.7	5.3	91	91	79	3.3
Glacier	5.0	5.7	98	96	51	2.7
Maliani	9.0	9.0	97	96	88	5.0
N.C.F(56)1	4.3	7.3	95	96	58	1.0
N.C.G(57)2	4.0	5.3	96	96	75	2.0
Cherokee	1.0	1.7	88	83	53	1.0
N9-502	5.7	7.3	96	96	52	5.3
N9-503	6.3	4.3	94	90	52	5.3
Cardinal (NK)	5.3	7.7	97	98	43	1.3
N9-500	5.0	7.3	95	96	71	3.3
N9-504	6.0	5.7	94	92	68	5.7
DuPuits (NK)	5.0	7.0	98	98	50	1.3
LSD .05	1.04	1.57	5.27	4.77	3.02	1.55
.01	1.38	2.09	6.98	6.31	4.01	2.04
C.V.%	16.5	24.2	4.9	4.6	4.6	36.6

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Table 8. Alfalfa Varieties, Experiment #107

Randomized Block Design
Plot Size 5'x 16'

Seeded: March 27, 1962
Four Replications

Variety	Yield - TDM/A 1963 5/20	6/26	8/15	9/23	Total	Leaf hopper Damage 1/
Cherokee	2.24	1.49	1.80	.86	6.39	1.0
Williamsburg	2.19	1.47	1.61	.77	6.04	7.5
Vernal	2.33	1.60	1.80	.62	6.35	5.0
Cayuga	2.30	1.44	1.75	.77	6.26	3.0
Narragansett	2.45	1.64	1.73	.77	6.59	8.5
Culver	2.47	1.41	1.61	.77	6.26	4.0
Ranger	2.18	1.44	1.62	.77	6.01	8.0
Stoneville-PCI	2.13	1.49	1.73	.83	6.18	8.0
Atlantic	2.34	1.56	1.81	.78	6.49	7.5
DuPuits	2.34	1.57	1.78	.79	6.48	9.0
Buffalo	2.22	1.49	1.72	.82	6.25	9.0
LSD .05	NS	0.10	NS	NS	NS	1.2
.01	NS	0.13	NS	NS	NS	1.6
C.V.%	6.7	4.5	11.2	11.9	6.4	12.8
Harvests	-	-	-	-	**	
Harvests x Variety	-	-	-	-	NS	

1/ 1 equal least damage to 9=most

Table 9. 1962 Alfalfa Variety Test

Location: Crop Research Center, Eastern States Farmers' Exchange, Feeding Hills, Massachusetts
Soil: Chicopee Fine Sandy Loam — Date and Rate of Seeding: August 30, 1962, - 16#/A
Experimental Design: Randomized Complete Block; 5 replications
Type of Planting: Broadcast — Plot Size: 6' x 7'
Area Sampled: 3 1/6' x 4'

Fertilizers: Before Seeding, August 20, 1962 - 350#/A 10-10-10
After 2nd cut, July 20, 1963 - 450#/A 0-10-30 w/B

Variety	5/8/63 Stand	5/8/63 Vigor	Yield of Dry Matter in Lbs./Acre 1st Cut	2nd Cut	3rd Cut	Season Total	Stemphylium 9/3	Stemphylium 10/11	Fall Growth
Arnim	92	2.6	5710	3410	2230	11350	3.8	2.8	2.4
Orchies	82	1.6	5600	3500	2680	11790	3.2	2.6	5.0
Maliani	89	1.2	4730	2940	2430	10090	3.6	2.6	5.0
Tuna	96	2.4	5470	3420	1910	10810	5.4	4.0	1.6
DuPuits	97	1.2	6100	3960	3430	13590	2.4	2.2	5.8
Cardinal	46	1.8	5190	3600	3040	11820	2.4	2.2	5.0
Alfa ('60 Wash. Cert.)	96	1.2	6380	3920	2960	13260	2.8	2.0	4.0
Williamsburg	91	1.2	5730	3690	2710	12130	3.6	2.8	4.4
Cayuga	96	2.0	5780	3710	2620	12110	4.6	4.0	3.0
Cherokee	85	2.4	5890	3600	3140	12630	2.6	2.2	4.0
Narragansett	95	2.4	5590	3910	2760	12250	4.2	3.4	2.2
Vernal	90	2.2	5950	3470	2370	11790	4.8	4.2	2.2
LSD .05			577	400	456	1030			
C.V.			7.9	8.7	13.0	6.7			

Table 10. 1962 Test of Purdue Synthetics

Location: Crop Research Center, Eastern States Farmers' Exchange, Feeding Hills, Massachusetts
Soil: Chicopee Fine Sandy Loam — Date and Rate of Seeding: August 30, 1962, - 16#/A
Experimental Design: Randomized Complete Block; 6 replications
Type of Planting: Broadcast — Plot Size: 6' x 7'
Area Sampled: 3 1/6' x 4'
Fertilizers: Before Seeding, August 20, 1962 - 350#/A 10-10-10
After 2nd cut, July 20, 1963 - 450#/A 0-10-30 w/B

Variety	5/8/63 Stand	5/8/63 Vigor	Yield of Dry Matter in Lbs./Acre 1st Cut	2nd Cut	3rd Cut	Season Total	Stemphylium 9/3	Stemphylium 10/11	Fall Growth
Purdue Syn. L	92	1.8	5440	2980	2480	10900	2.8	2.7	3.0
M	90	1.5	5580	2810	2140	10530	3.2	2.3	2.2
O	87	2.2	5100	2810	2240	10150	3.2	3.2	2.7
P	88	2.2	5140	2740	2100	9990	3.7	3.0	2.7
R	91	1.2	5440	2980	2900	11320	2.8	2.2	3.2
S	91	1.3	5770	3100	2710	11580	2.8	2.8	3.0
T	93	1.7	5490	2960	2000	10450	5.3	4.5	2.3
U	87	2.5	5560	3380	3040	11990	3.2	3.3	3.8
V	91	1.5	6020	3620	2690	12330	2.8	2.8	1.8
W	83	1.3	6000	3020	2680	11710	4.0	2.8	3.3
X	91	4.0	4830	2390	2240	9460	2.3	3.5	1.7
Y	91	2.0	5470	3170	2890	11530	2.5	3.2	2.0
Vernal	91	1.5	5790	3330	2340	11460	3.8	3.0	2.7
Narragansett	93	2.0	5570	2700	2180	10440	2.8	2.3	2.2
DuPuits	83	1.2	5380	2960	3030	11380	2.5	2.3	5.3
Cayuga	89	1.7	5290	3080	2600	10990	3.0	3.2	3.7
Culver	91	1.7	5720	3170	2470	11350	3.0	3.0	2.2
Buffalo	85	1.5	5240	2940	2340	10520	4.0	2.8	4.3
Tuna	96	1.8	5540	2890	2010	10450	4.2	3.2	2.5
Cherokee	84	2.3	5540	2800	2910	11250	2.3	2.2	4.0
LSD .05			NS	NS	615	NS			
C.V. %			11.1	17.8	21.5	12.4			

Table 11. ALFALFA VARIETY TEST - 1963

North Mississippi Branch Experiment Station
Holly Springs

Variety	Pounds of oven-dry forage per acre				
	First cutting 5/1/63	Second cutting 6/6/63	Third cutting 7/2/63	Fourth cutting 8/8/63	Total four cuttings
Uinta	2233	1888	564	558	5243
Stoneville P.C. 1	2020	1740	718	630	5108
Buffalo	1956	1754	713	607	5030
Williamsburg	1940	1750	693	602	4985
Atlantic	1981	1705	635	560	4881
Cody	1800	1760	730	577	4867
DuPuits	2036	1351	585	655	4627
Culver	1895	1547	491	535	4468
LSD .05	ns	244	109	ns	ns
C. V. (%)	13	11	13	16	10

Seeded: September 1, 1962. Fertilization: 200# P_2O_5, 200# K_2O, and two pounds of B per acre at seeding, on a previously limed soil which had a pH of 6.2.

Plot size: seven by 15 feet; harvested area: five by 15 feet

Five replications of a randomized block design.

Soil type: Grenada silt loam, A2

Rainfall, 1963:

April	6.00 inches
May	6.02 inches
June	1.92 inches
July	4.67 inches (2.32 in one storm)
August	2.49 inches
September	1.76 inches
October	0.00 inches

ALFALFA VARIETY STUDIES IN MISSISSIPPI

The adaptability of alfalfa for Mississippi has often been questioned. Variety investigations concerning this question were initiated at three locations in the fall of 1962. Newton is located approximately 120 miles south of State College and Smithville is located approximately 80 miles north of State College. Rainfall during the season was about average (51 inches per year) for the Smithville location but about ten inches below normal at the other two locations. The low yields at Newton (See Table 12) are probably due to the extreme droughty conditions existing there. The yields at the other two locations were very encouraging. DuPuits and Alfa were the highest yielding entries, averaging 5.60 and 5.53 tons of dry matter respectively over the three locations. The selection from Stoneville seems quite promising as its average yield for the first harvest year was 5.32 tons. This entry has been selected primarily for persistence and disease resistance.

Table 12. Tons of dry matter produced per acre by 16 Alfalfa varieties in the first harvest year (1963).

	State College	Newton	Smithville	Average
1. DuPuits	7.48	2.75	6.57	5.60
2. Alfa	7.17	2.47	6.94	5.53
3. Stoneville P.C. 1	7.21	2.60	6.14	5.32
4. Williamsburg	7.37	2.60	5.82	5.26
5. Buffalo	7.34	2.35	5.88	5.19
6. Okl. Common	6.96	2.50	5.88	5.11
7. Kan. Common	7.04	2.50	5.63	5.06
8. Cayuga	7.06	2.46	5.30	4.94
9. Cherokee	6.76	2.43	----	4.94
10. Cody	6.78	2.42	5.32	4.84
11. Narragansett	6.59	2.16	5.75	4.83
12. Vernal	6.42	2.63	5.43	4.83
13. Culver	6.31	2.63	5.25	4.73
14. Atlantic	6.76	2.56	4.84	4.72
15. Uinta	6.07	2.46	5.24	4.66
16. Rhizoma	6.02	2.03	5.38	4.48
No. of Cuts	6	4	6	
LSD.05	.43	.50	.55	
LSD.01	.57	.66	.73	
CV%	5.3	11.8	7.3	
Date Planted:	Oct. 5	Oct. 12	Sept. 28	
Soil Type:	Leeper fine Sandy Loam	Rouston Fine Sandy Loam	Tilden Silt Loam	

[1] Adequate lime and fertilizer were applied at each location as was indicated by soil test. All seedings were broadcast by hand. The seeding rate was 15 pounds of good seed per acre. There were five replications at State College and four for the other two locations.

Table 13. 1957 Alfalfa Variety Test
Location: Middle Ogden Field, Ithaca 1963 data

Yield - Tons/acre (12%M)

Random Number	Entry	Seed Lot Number	6/24	8/-	9/18	Total Season	% Alfalfa 6/24
1	Scandia (Alfa)	57-51	.82	.26	.00	1.07	0
2	Alfa	57-56	1.17	.27	.00	1.44	↓
3	Alfa - Elite	57-52	.71	.32	.00	1.03	↓
4	DuPuits	57-53	1.01	.20	.00	1.21	↓
5	DuPuits	57-49	.82	.33	.00	1.15	↓
6	Cardinal	57-63	.72	.36	.00	1.08	0
7	Tourneur 501	57-57	.59	.23	.00	.82	↓
8	GPR - 2	-	.71	.41	.00	1.12	↓
9	Rambler	57-55	1.03	.91	.17	2.12	45
10	Lahontin	57-54	1.51	1.53	.70	3.74	83
11	Ranger	57-59	1.38	1.41	.53	3.32	81
12	Purdue F	57-62	1.44	1.35	.58	3.37	92
13	N.Y. "A"	57-10	1.89	1.66	.65	4.20	94
14	N.Y. "B" (CAYUGA)	57-8	1.69	1.70	.72	4.11	93
15	N.Y. "C"	57-9	1.67	1.59	.69	3.95	87
16	N.Y. "A"	1955 seed	1.82	1.56	.69	4.07	92
17	N.Y. "B" (CAYUGA)	1955 seed	1.84	1.62	.75	4.21	93
18	N.Y. "C"	1955 seed	1.68	1.52	.64	3.83	89
19	Vernal	33273	1.74	1.56	.61	3.92	93
20	Vernal	57-48	1.67	1.32	.51	3.50	86
21	Narragansett	57-50	1.19	.81	.15	2.16	26
22	Narragansett	57-58	.96	.59	.08	1.63	26
	Average		1.27	.98	.34	2.59	
	F - Varieties		8.46**	41.11**	72.69**	53.08**	
	L.S.D. (P=.05)		.43	.26	.10	.51	
	C. V. %		26.4	21.2	23.8	15.7	

Notes: (1) The yield and composition figures clearly indicate the result of six harvest years of intensive harvest Management and presence of bacterial wilt. Production potential on Cayuga and similar strains is still fair but only 50-75% of earlier production.

Table 14. 1958 Alfalfa Variety Trial
Location: W. Lamkin Field, Ithaca, N.Y. 1963 Data
Management: 3 cuts/season

Yield - Tons per Acre (12% M)

Random Number	Entry	N.Y. Seed Number	6/27	8/5	9/17	Season Total	% Alfalfa 8/27
1	Gillon	58-35	.79	.14	.00	.94	1
2	FD - 100	58-36	.63	.14	.00	.76	2
3	GPR - 2	58-34	1.19	.54	.16	1.89	2
4	Socheville	58-28	1.17	.41	.02	1.61	11
5	Alfa	58-29	.82	.23	.00	1.05	1
6	Alfa	58-2	.86	.25	.02	1.14	4
7	Alfa	57-51	.89	.33	.03	1.25	8
8	Alfa	57-56	1.18	.38	.01	1.57	13
9	Cardinal	58-3	.82	.35	.03	1.20	7
10	Cardinal	57-57	.98	.34	.04	1.37	5
11	DuPuits	58-46	.92	.22	.00	1.13	1
12	DuPuits	58-18	1.03	.40	.04	1.48	16
13	Vernal	58-16	1.67	1.34	.44	3.45	58
14	Vernal	58-47	1.57	1.11	.29	2.97	42
15	P. I. 246356	58-37	1.67	1.22	.38	3.27	30
16	N.Y. Syn A-57	58-1	1.85	1.33	.36	3.54	57
17	N.Y. Syn A-56	57-10	2.05	1.35	.60	4.00	52
18	N.Y. Syn B-56 (CAYUGA)	57-8	1.91	1.45	.57	3.93	42
19	Ranger	58-17	1.69	1.14	.41	3.24	24
20	Narragansett (Cert.)	58-19	1.96	1.40	.43	3.78	43
21	Narragansett (Cert.)	58-20	1.74	1.09	.34	3.17	42
22	Narragansett (H.S. seb.)	58-4	1.92	1.46	.46	3.84	45
23	Narragansett (Cert. Wyom.)	58-14	1.53	1.06	.28	2.87	35
24	Narragansett (Cert. Wyom.)	58-23	1.51	1.02	.26	2.79	16
25	Narragansett (Cert.)	57-50	1.51	.91	.20	2.63	23
	Average		1.35	.79	.22	2.35	
	F - Varieties		11.75**	25.84**	18.30**	25.06**	
	L.S.D. (P=.05)		.36	.27	.13	.63	
	C. V. %		21.3	27.3	45.0	21.3	

Notes: (1) This is a very drouthy site; production was fair in 1963 where stands were still present after very light production in 1962.

(2) There is a difference in survival of the Narragansett lots - other test suggest lots 58-4 and 58-19 are somewhat different plant populations.

Table 15. 1959 Alfalfa Variety Trial - Helfer Field #1
Management: 3 cuts/season 1963 Data

Yield - Tons per Acre

Random Number	Entry	N.Y. Number	1st cut 6/10	2nd cut 8/1	3rd cut 8/30	Season Total
1	F-D 100	59-6	1.13	.22	.01	1.35
2	Flandria	59-27	1.29	.26	.00	1.55
3	MM - 505	59-4	1.22	.39	.03	1.63
4	NP - 502	59-28	1.45	.66	.09	2.20
5	NP - 503	59-29	1.14	.60	.11	1.85
6	NP - 504	59-30	1.43	.82	.18	2.43
7	Ross #2	59-26	1.22	.24	.01	1.46
8	Alfa	59-23	1.19	.30	.00	1.49
9	DuPuits	59-22	1.08	.21	.00	1.30
10	Ranger	59-21	1.14	.47	.08	1.69
11	Socheville	59-24	1.05	.22	.00	1.27
12	Narragansett	59-19	1.36	.61	.06	2.03
13	Syn. A	58-1	1.41	.84	.15	2.40
14	Syn. B	57-8	1.54	.96	.23	2.73
15	Vernal	59-20	1.41	.95	.20	2.56
16	High Seed Narr. (Wyom.)	58-4	1.40	.83	.13	2.37
17	High Seed Narr. (Cal.)	59-31	1.41	.69	.07	2.17
18	Tuna Alf.	59-	1.28	.49	.04	1.82
	Average		1.29	.54	.08	1.91
	F - Varieties		1.68 —	5.79**	7.49**	4.15**
	L.S.D. (P = .05)		.132	.131	.108	.165
	C.V. %		21.5	50.0	87.4	29.5

Notes: (1) Stands greatly reduced - there was differential survival over tile lines. 1963 yields indicate wilt is probably involved with stand depletion but is only one of several factors.

Table 16. 1960 Ranger Alfalfa Region of Adaptation Test
Location - Snyder Field 1963 data
Yield - Tons/acre (12%M)

Random Number	Entry	Seed Information Class	State	Yr.	Origin	6/6	7/25	9/3	Season Total	(adj) Total (lattice)	%DM 6/6
1	FC 32,119	FD.	Nebr.			1.60	1.27	.90	3.77	3.84	14.1
2	FC 32,120	Reg.	Cal.	54		1.50	1.28	.81	3.58	3.77	14.7
3	FC 32,131	Breeder				1.58	1.31	.88	3.76	3.49	14.7
4	FC 32,669	Reg.	Ariz.	54		1.60	1.31	.90	3.81	3.81	14.9
5	FC 32,693	Reg.	Ariz.	54		1.54	1.56	.90	4.00	3.72	14.4
6	FC 32,786	A-110	Comp.	53							
7	FC 32,787	A-116	Comp.	53		1.60	1.20	.86	3.66	3.50	15.2
8	FC 32,788	A-117	Comp.	52		1.48	1.21	.78	3.47	3.26	13.9
9	FC 32,789	A-117	Comp.	53		1.63	1.20	.91	3.74	3.54	14.8
10	FC 32,790	A-119	Comp.	53		1.80	1.40	.97	4.17	3.74	15.5
						1.52	1.31	.75	3.58	3.64	14.2
11	FC 33,290	A-111	Comp.	55							
12	FC 33,836	Cert.	Mont.	57		1.83	1.41	1.08	4.32	3.71	14.2
13	FC 33,837	"	"	57		1.48	1.30	.66	3.44	3.56	15.0
14	FC 33,838	"	"	57		1.69	1.33	.89	3.91	3.80	14.7
15	FC 34,193	"	"	58		1.54	1.28	.96	3.78	3.70	14.3
						1.45	.99	.74	3.18	3.65	14.5
16	FC 34,194	Reg.	Mont.	58							
17	FC 34,959	Reg.	Mont.	59		1.66	1.39	.89	3.94	3.87	15.2
18	FC 35,290	—	Ariz.	60	Wash-56	1.56	1.19	.69	3.44	3.56	15.5
19	FC 35,291	—	Ariz.	60	Mont-56	1.20	1.04	.58	2.82	3.18	14.0
20	FC 35,292	—	Ariz.	60	Oreg-58	1.42	1.32	.82	3.56	3.63	14.2
						1.39	1.37	.72	3.49	3.74	15.1
21	FC 35,293	—	Ariz.	60	Wash-58	1.55	1.32	.88	3.76	3.64	13.9
22	FC 35,294	—	Ariz.	60	Mont-58	1.18	1.14	.76	3.09	3.59	14.2
23	FC 35,362	Cert.	Mont.			1.54	1.48	.89	3.91	3.74	14.4
24	FC 34,628	Com.				1.48	1.18	.85	3.51	3.62	15.2
25	Cert.					1.36	1.39	.70	3.45	3.63	14.6
	Average					1.53	1.29	.83	3.65	3.65	14.6
	(RCB) F - Varieties					1.23-	.184-	1.70*	1.14-		1.18-
	L.S.D. (P=.05)					.138	.39	.24	.87	.45	1.3
	C.V. %					21.6	26.4	25.1	20.6	10.7	7.5
	Effic. (%)									Effic. = 31.2%	

NOTES: (1) High 3rd harvest season error due to winter injury (icing) in 1962-63. Loss appeared random in lower elevations within trial site. There is some doubt if lattice adjustments are meaningful under these circumstances.

Table 17. 1960 Atlantic Region of Adaptation Trial
Location: Snyder Field 1963 Data

Random Number		Entry	N.Y. Number	Yield - Tons/Acre (12%M) 1st Cut	2nd Cut	3rd Cut	Season Total
1	FD.-Wyom (1953)	FC 32,118	60-54	1.79	1.39	.92	4.10
2	Reg.-Cal. (1954)	FC 32,121	60-55	1.80	1.42	87	4.09
3	Reg.-Utah (1954)	FC 32,665	60-56	2.00	1.46	88	4.33
4	Reg.-Ariz. (1954)	FC 32,668	60-57	1.58	1.28	.79	3.64
5	Reg.-Okla. (1954)	FC 33,210	60-58	2.00	1.55	.97	4.53
6	Cert.-Wyom. (1956)	FC 33,773	60-59	1.65	1.39	.82	3.87
7	Reg.-Okla. (1955)	FC 33,782	60-60	1.50	1.21	.83	3.54
8	Reg.-Ariz. (1955)	FC 35,282	60-61	2.06	1.52	1.03	4.61
9	Reg.-Ariz. (1956)	FC 35,283	60-62	1.94	1.47	.94	4.35
10	Reg.-Ariz. (1957)	FC 35,284	60-63	1.44	1.22	.81	3.46
11	Reg.-Ariz. (1958)	FC 35,285	60-64	2.03	1.48	.89	4.41
12		FC 35,286	60-65	1.86	1.42	.91	4.19
13	FD.-Wyom→Reg. Utah→Cert.Ariz.-1955	FC 35,287	60-66	1.95	1.45	.88	4.28
14	(1953, (1954)	-1956 FC 35,288	60-67	2.02	1.40	.89	4.31
15		-1957 FC 35,289	60-68	1.90	1.50	.99	4.39
16	Cert. (Cal.-58)	-1958 FC 34,716	60-69	1.72	1.41	.84	3.97
		Average		1.83	1.41	.89	4.13
		F-Varieties		1.95*	1.84*	1.56-	1.99*
		L.S.D. (P=.05)		.40	.21	.15	.70
		C.V. %		17.5	11.7	13.6	13.4

Notes: (1) Variation in yield in 1963 reflects stand damage overwinter. Very slight elevation differences within trial determined survival. Other species virtually absent where stands were lost so yields reflect the stand losses.

Table 18. -1960 Alfalfa Variety Trial - Pulleyn Field, Ithaca
Location: Pulleyn Field 1963 Data

Random No.	Entry	N.Y. No.	Total Yield - Tons/Acre (12% M) 6/19	8/2	9/13	Season Total	Total (Adj.)	% Alfalfa 6/19	8/2	Total Alf. Fraction (RCB)
1	N.Y. Syn. A	60-18	1.95	1.44	.65	4.03	4.05	56	84	2.95
2	N.Y. Syn. B	60-19	2.01	1.43	.60	4.05	4.08	68	87	3.21
3	H.S. Narrag.	60-20	2.16	1.54	.70	4.39	4.39	69	86	3.51
4	W.R. Narrag.	60-21	2.35	1.60	.71	4.67	4.66	73	92	3.90
5	W.R. Flemish	60-22	2.22	1.64	.75	4.61	4.54	73	90	3.85
6	N.Y. Syn. C	60-1	1.86	1.23	.56	3.65	3.67	51	81	2.50
7	Ross #2	60-2	1.84	1.22	.53	3.60	3.60	43	75	2.24
8	Beard - 16 cl HLK	60-3	2.13	1.37	.60	4.10	4.10	66	83	3.14
9	Tuna	60-4	2.18	1.50	.63	4.31	4.25	57	93	3.27
10	Arnim	60-5	1.99	1.29	.54	3.81	3.90	62	83	2.84
11	Flandria	60-6	2.04	1.35	.61	3.99	4.00	71	91	3.29
12	FD-100	59-6	2.08	1.44	.60	4.13	4.06	73	86	3.36
13	FD- 100	60-28	1.98	1.36	.58	3.93	3.93	75	93	3.33
14	GPR- 1	60-12	2.18	1.40	.58	4.16	4.19	71	91	3.40
15	Socheville	59-24	2.14	1.38	.61	4.13	4.14	68	84	3.22
16	Narr.-Syn. 2	60-23	2.25	1.73	.77	4.74	4.75	80	94	4.20
17	Narr.-Syn. 2	60-24	2.09	1.54	.67	4.30	4.34	70	87	3.47
18	Narr.-Syn. 2	60-25	2.18	1.60	.71	4.49	4.43	60	81	3.31
19	Narr.-Syn. 1	(Garden)	2.12	1.56	.75	4.43	4.46	71	90	3.65
20	Narragansett	59-19	2.19	1.60	.78	4.57	4.50	74	89	3.82
21	Vernal	60-26	1.97	1.40	.63	4.00	4.07	60	84	2.99
22	Ranger	60-13	1.86	1.12	.53	3.51	3.49	38	78	2.11
23	DuPuits	60-17	2.03	1.46	.61	4.11	4.09	74	93	3.47
24	Alfa	60-15	2.01	1.26	.59	3.86	3.89	71	82	3.05
25	Narragensett	60-14	2.19	1.50	.65	4.34	4.31	58	86	3.21
	Ave.		2.08	1.44	.64	4.16	4.16			
(RCB)	F-Var.		1.53 -	2.66*	1.90*	3.20**				
	L.S.D. (P=.05)		.130	.125	.115	.152	.151			
	C.V. %		12.3	15.4	20.9	10.9	10.6			
	Effic %						105%			

Note: (1) Performance in this trial has been greatly affected by establishment differences in a very dry season. Wilt spots showed strongly on Flemish varieties in 1963 but not on Narragansett Strains. Alfalfa composition reflects establishment differences.

Table 19. 1960 Alfalfa Demonstration Trial - Caldwell IV

Fall Seeding 18# / Acre 1963 Data

Management: 2 Cuts in 1961; 3 in 1962; 2 in 1963

Random Number	Entry	N.Y. No.	Total Yield - Tons/Acre (12%M) 1st cut 6/5	2nd cut 7/25	Season Total	% Alfalfa 6/11
1	Vernal	60-26	1.73	.75	2.47	35
2	Narragansett	60-14	1.58	.56	2.14	21
3	DuPuits	60-17	1.42	.33	1.75	9
4	Alfa	60-15	1.37	.34	1.71	4
5	Ranger	60-13	1.72	.73	2.45	41
6	N.Y. Syn. B	60-19	1.73	.74	2.47	54
7	H.S. Narrag.-Calif.	60-20	1.77	.66	2.43	38
8	H.S. Narrag.-Garden	60-23	1.69	.89	2.58	51
9	H.S. Narrag.-Helfer	60-24	1.78	.83	2.61	40
10	W.R. Narrag.	60-21	1.81	.74	2.55	48
11	W.R. Flemish	60-22	1.59	.60	2.19	32
12	N.Y. Syn. A	60-18	1.70	.73	2.43	39
	Average		1.66	.66	2.32	
	F-Entries		3.52**	7.45**	5.55**	
	L.S.D. (P=.05)		.29	.18	.28	
	C.V. (%)		12.0	25.6	11.4	

Notes: (1) This trial was fall planted in 1960, produced well under light management in 1961 and gave fair production under drouth stress in 1962. It is in a low area and infested with wilt. The disease plus usually severe winters greatly reduced stands by 1963. All plants were gone in lower reps. even on resistant varieties and the average production was rather poor. The performance of Narragansett and it's derivatives makes it clear that alfalfa persistance in New York is not solely a function of resistance to bacterial wilt.

Table 20. 1960 Hi Seed Narragansett Breeders Seed Lots and Components Trial
Location: Snyder Field 1963 Data

Random Number	Entry	N.Y. No.	Total Yield - Tons/Acre (12% M) 1st cut 6/6	2nd cut 7/25	3rd cut 9/3	Season Total	%D.M. 6/6
1	PCP W-7		1.53	1.91	.97	4.41	14.4
2	" W-8		1.69	1.89	1.01	4.58	15.4
3	" W-10		1.64	1.73	.92	4.29	14.3
4	" W-11		1.54	1.86	.88	4.28	15.1
5	" W-15		1.63	1.83	1.06	4.53	14.0
6	PCP W-27		1.86	2.00	.95	4.82	15.1
7	" W-30		1.72	1.98	1.10	4.80	14.8
8	" W-32		1.70	1.91	.99	4.61	14.7
9	" W-42		1.77	1.85	.80	4.42	14.7
10	" W-43		1.70	2.07	1.00	4.77	14.7
11	Bulk-Syn. 1	(60-29)	1.74	1.88	.97	4.58	14.9
12	Garden Syn. 2	(60-23)	1.78	1.95	1.02	4.75	14.8
13	Calif. Syn. 2	(60-20)	1.74	1.96	1.02	4.73	15.3
14	Helfer Syn. 2	(60-24)	1.71	1.71	.99	4.41	14.9
15	W. Lamkin Syn. 2	(60-25)	1.58	1.86	.97	4.41	15.1
16	W. R. Narrag	(60-21)	1.79	1.93	.99	4.71	15.6
17	Narrag (Cert.)	(59-19)	1.80	1.70	.93	4.43	15.3
18	Narrag (Cert.)	(60-14)	1.47	1.52	.76	3.75	15.5
	Ave.		1.69	1.86	.96	4.51	14.9
	"F"-Entries		1.19—	2.49**	3.54**	1.94*	1.91
	L.S.D. (P=.05)		.27	.23	.13	.52	.9
	C.V.%		13.9	10.9	11.3	10.0	5.1

Table 21. 1961 Alfalfa Variety Trial
Location: Ketola Field, Ithaca 1963 data

Yield - Tons/acre (12% M)

Random Number	Entry	N.Y. Seed Lot#	6/12	7/26	9/10	Season Total	adj. Total
1.	Multiple-leaf Bulk	61-60	1.95	1.38	1.04	4.37	4.24
2.	Hi-seed Narrag, Idaho-60	61-43	1.98	1.14	.94	4.06	4.02
3.	Hi-seed Narrag, Calif.-60	61-45	1.86	1.13	.90	3.89	3.95
4.	Hi-seed Narrag, Bulk-Cal.60	61-63	1.92	1.14	.91	3.96	4.03
5.	W.R. Narrag.	60-21	1.72	1.18	.84	3.74	3.89
6.	Cayuga, Cal.-59	60-19	1.60	1.08	.84	3.53	3.47
7.	Cayuga-Breeders, Idaho-60	61-44	1.63	1.05	.87	3.56	3.49
8.	Arnim	60-5	1.60	1.11	.93	3.64	3.71
9.	G PR-1	60-12	1.63	1.11	.95	3.69	3.65
10.	F. D. 100	60-28	1.36	.92	.74	3.02	3.02
11.	W. R. Flemish	60-22	1.56	1.02	.85	3.43	3.42
12.	Flandria - Fr. Cert.	61-57	1.56	1.08	.90	3.55	3.52
13.	Flandria - Cal. -60	61-58	1.56	1.28	1.01	3.85	3.84
14.	Flandria - Basic 60	61-59	1.73	1.22	1.00	3.95	3.79
15.	Du-Puits	61-53	1.55	1.11	.89	3.55	3.50
16.	Vernal-Cert.	61-52	1.77	1.10	.83	3.69	3.64
17.	Narrag-Cert.	61-54	1.96	1.34	.92	4.22	4.10
18.	MK -507	61-51	1.68	1.09	.91	3.67	3.90
19.	MK -508	61-50	1.59	1.02	.86	3.47	3.49
20.	Culver	61-64	1.64	1.02	.83	3.49	3.52
21.	Cody	61-65	1.22	.69	.62	2.52	2.76
22.	NY-607	61-6	1.64	1.09	.99	3.72	3.71
23.	NY-608	61-7	1.67	1.11	.91	3.69	3.57
24.	NY-609	61-8	1.89	1.15	.91	3.95	3.88
25.	NY-610	61-9	1.59	1.02	.85	3.46	3.42
	Average		1.67	1.10	.89	3.66	3.66
	F - Varieties		3.82**	4.08**	4.16**	4.76**	
	L.S.D. (P=.05)		.26	.19	.12	.48	.38
	C.V. (%)		13.7	14.7	11.8	11.3	9.1

EFFC 157%

Notes: (1) Some winter damage on stands - this was partly random but there appeared to be evidence of variety differences in the areas within the trial where damage was most severe.

Table 22. 1961 Flemish Seed Source Trial
Location: Helfer Field #2 1963 Data
Mgt.: 3 cuts/season

Random Number	Entry	N.Y. No.	Yield - Tons per Acre (12%M) 6/12	8/1	9/2	Season Total
1	Flandria	60-6	2.12	1.98	.81	4.91
2	Flandria	61-57	1.79	1.77	.78	4.35
3	Flandria	61-59	1.55	1.68	.74	3.97
4	F D-100	59-6	1.48	1.53	.57	3.58
5	F D-100	60-28	1.88	1.83	.80	4.50
6	DuPuits-Elite	61-66	1.54	1.72	.70	3.96
7	" "	59-1	1.79	1.87	.73	4.39
8	" "	60-9	1.75	1.79	.78	4.32
9	" "	61-46	1.90	1.97	.64	4.51
10	Alfa-Fd.	58-44	1.77	1.87	.69	4.33
11	Alfa-Fd.	59-5	1.72	1.78	.78	4.28
12	Alfa-Elite	60-11	1.88	1.64	.64	4.16
13	Alfa-Fd.	60-7	1.99	2.03	.77	4.78
14	Alfa-Fd.	60-8	1.98	1.84	.68	4.50
15	Alfa-Breeders	61-61	1.55	1.59	.57	3.71
16	Alfa	61-48	1.83	1.96	.71	4.50
17	Alfa	61-49	1.84	1.90	.70	4.44
	Average		1.79	1.81	.71	4.31
	"F" - entries		1.04 —	1.37 —	.75 —	1.08 —
	L.S.D. (P=.05)		.49	.54	.24	.84
	C.V. (%)		21.7	14.9	27.0	12.3

Notes: (1) There were a few spots where icing during severe winter of 1962-63 damaged stands but most were good.

(2) Some yellow and cream colored flowers were observed in plots where entry 13 was grown - possible contamination during production.

Table 23. 1962 Alfalfa Variety Trial
Location: Ketola Field #1, Ithaca 1963 data

Yield - Tons per acre (12% M)

Random Number	Entry	N.Y. No.	6/13	7/26	9/10	Total Season	(adj) Total Yield (lattice)	%DM 6/13
1	W-60-B	62-51	2.19	1.47	1.15	4.81	4.79	13.9
2	W-60-A	62-52	2.22	1.39	1.09	4.71	4.70	14.8
3	CL-10	62-61	2.55	1.44	1.16	5.15	5.18	16.1
4	Uinta	62-48	2.23	1.43	1.14	4.80	4.80	14.1
5	Utah J-2	62-49	2.07	1.30	1.09	4.46	4.45	16.5
6	A-253a	62-50	2.28	1.38	1.07	4.72	4.75	15.2
7	Cherokee	62-67	2.40	1.32	1.16	4.88	4.91	15.9
8	Culver	62-65	2.31	1.39	1.07	4.77	4.82	14.3
9	Hi-seed Narrag. (Ida.-60)	61-43	2.48	1.53	1.19	5.20	5.22	15.3
10	Hi-seed Narrag. (Ida.-61)	62-30	2.41	1.40	1.13	4.95	4.96	14.0
11	Cayuga-Breeders 60	61-44	2.23	1.61	1.14	4.98	5.01	14.6
12	Cayuga-Breeders 61	62-64	2.14	1.42	1.12	4.69	4.65	15.5
13	Cayuga-Fd. 61	62-55	2.30	1.47	1.12	4.89	4.89	14.3
14	Cayuga-Cert.-61	62-62	2.27	1.61	1.19	5.08	5.11	14.3
15	Vernal-Cert.-60	61-52	2.47	1.48	1.13	5.08	5.07	14.4
16	Vernal-Cert.-61	62-57	2.33	1.47	1.18	4.98	4.95	14.1
17	Narrag. Cert.-61	62-56	2.40	1.55	1.15	5.11	5.07	14.8
18	Narrag. Cert.-60	61-54	2.36	1.62	1.17	5.15	5.18	14.0
19	Mega	62-69	2.47	1.85	1.19	5.52	5.54	14.3
20	DuPuits	62-60	2.62	2.00	1.33	5.96	5.92	15.3
21	Franck's Langmeiler	62-53	2.24	1.63	1.16	5.02	4.97	14.2
22	AT-525	62-70	2.51	1.51	1.15	5.18	5.13	15.7
23	Multiple-leaf Bulk	61-60	2.57	1.79	1.21	5.56	5.54	15.8
24	Ranger	62-58	2.17	1.49	1.08	4.74	4.79	14.6
25	Cody	61-65	2.31	1.45	1.10	4.86	4.85	16.6
	Average		2.34	1.52	1.15	5.01	5.01	14.9
	F-Varieties		1.87*	8.73**	2.46**	4.87**		1.45-
	L.S.D. (P=.05)		.30	.16	.10	.41	.40	1.9
	C.V.%		11.0	9.0	7.6	7.1	6.9	11.3
	Ave. DM%		14.9	21.3	20.7			
	Effic. %						105 %	

Note- Very excellent trial

Table 24. -1962 Alfalfa Variety Trial
Location: McGowan Field, Ithaca 1963 data

Yield - Tons per acre (12%M)

Random Number	Entry	N.Y. No.	6/13	7/30	9/13	Total Season	(adj.) Total Yield (lattice)	% DM 6/13
1	CL-10	62-61	1.95	1.74	1.05	4.74	4.79	17.4
2	Uinta	62-48	2.12	1.71	1.14	4.97	4.94	17.8
3	Utah J-2	62-49	1.88	1.48	.97	4.33	4.39	17.9
4	A-253a	62-50	1.91	1.36	.94	4.20	4.42	17.9
5	Cherokee	62-67	1.80	1.54	1.11	4.45	4.54	18.4
6	Culver	62-65	2.09	1.57	1.00	4.66	4.63	17.8
7	Hi Seed Narrag.	61-43	2.05	1.85	1.11	5.01	4.99	16.8
8	Hi Seed Narrag.	62-30	2.06	1.73	1.06	4.84	4.92	17.7
9	Cayuga - (Cert. 61)	62-62	2.06	1.79	1.09	4.94	4.93	17.6
10	Cayuga - (Breed. 60)	61-44	2.18	1.73	1.08	4.99	4.95	17.4
11	Vernal	62-57	2.12	1.60	.94	4.66	4.71	17.5
12	Narragansett	62-56	2.14	1.88	1.09	5.11	5.02	17.4
13	W-60-B	62-51	1.98	1.75	1.07	4.80	4.86	17.4
14	W-60-A	62-52	1.88	1.65	1.01	4.55	4.56	16.7
15	Europe A-10	62-68	2.41	1.91	1.19	5.50	5.43	16.8
16	Multiple-leaf bulk	61-60	2.05	1.79	1.19	5.02	4.95	16.6
17	DuPuits	62-60	1.96	1.94	1.28	5.18	5.21	16.2
18	AT-525	62-70	2.06	1.71	1.05	4.81	4.64	18.0
19	Ranger	62-58	1.84	1.67	1.03	4.54	4.42	17.2
20	Cayuga (Breed. 61)	62-64	1.99	1.64	1.13	4.76	4.83	17.8
21	NY 607 $(14,18,40,55)_2$	61-6	2.03	1.76	1.19	4.98	5.05	17.4
22	NY 608 $(9,19,40,55)_2$	61-7	2.00	1.70	1.15	4.85	4.86	17.4
23	NY 610 $(91,18,40,72)_2$	61-9	2.21	1.74	1.15	5.10	5.00	18.2
24	NY 613 (14x55)x(19x75)	61-12	1.95	1.80	1.14	4.89	4.93	16.5
25	NY 606 $(14,55,19,75)_2$	61-5	2.13	1.79	1.20	5.11	5.07	18.8
	Average		2.03	1.71	1.09	4.84	4.84	17.5
	F-Varieties		1.69*	2.74**	6.10**	3.24**		1.15-
	L.S.D. (P=.05)		.28	.23	.10	.45	.39	1.6
	C.V. (%)		12.1	11.5	7.7	8.1	7.0	8.0
	Ave. DM%		17.5	20.1	18.6			
	Eff. (%)						135%	

Notes: Excellent trial but severe winter did affect performance. No kill, but early season growth delayed.

Table 25. 1962 Flemish Alfalfa Variety Trial
Location - McGowan Field, Ithaca 1963 data

Yield-Tons/acre (12% M)

Random Number	Entry	N.Y. No.	6/19	7/30	9/16	Total Season
1	Flandria	61-57	2.23	1.77	1.38	5.37
2	DuPuits	62-60	2.26	1.80	1.42	5.48
3	Francks Langmeiler **	62-53	2.07	1.47	1.26	4.80
4	Flamande, SC118	62-54	2.06	1.84	1.42	5.33
5	Hi-Seed Narrag. **	62-30	1.79	1.68	1.23	4.70
6	Europe A-10	62-68	2.51	1.86	1.39	5.76
7	Alfa	62-63	2.54	1.80	1.41	5.74
8	NO 507	61-51	2.36	1.88	1.41	5.65
9	Alfa	61-56	2.65	1.88	1.38	5.91
10	DuPuits	61-53	2.13	2.00	1.41	5.55
11	NK 505	59-5	2.36	1.89	1.40	5.65
12	NO 508	61-50	2.29	1.95	1.47	5.71
	Average		2.27	1.82	1.38	5.47
	F-entries		4.26**	2.47*	3.03**	5.22**
	L.S.D. (P=.05)		.33	.25	.11	.46
	C.V. (%)		11.4	10.7	6.4	6.7

Notes: (1) This is a somewhat unusual trial. It is on a heavy clay loam where surface water can cause winter damage under some conditions. Early vigor was definitely affected by winter injury during 1962-63; stands may also have been influenced but they are generally fair to good. Past experience has shown survival effects are sometimes expressed several seasons later.

(2) Non Flemish strains included for comparison of growth type.

Table 26. 1962 Alfalfa Variety Trial
Location: Macedon Center (Wayne Co.) 1963 data

Yield - Tons/acre (12%M)

Random Number	Entry	N.Y. Number	6/11	8/6	9/25	Total Season
1	Cayuga	62-62	2.54	.28	.63	3.46
2	Cayuga	62-64	2.35	.37	.60	3.32
3	AT 525	62-70	3.13	.29	.63	4.06
4	DuPuits	62-60	2.92	.50	.82	4.25
5	Ranger	62-58	2.49	.34	.59	3.42
6	Culver	62-65	2.55	.26	.43	3.24
7	Vernal	62-57	2.97	.29	.54	3.79
8	CL-10	62-61	2.65	.38	.60	3.63
9	Narrag.	62-56	2.53	.25	.58	3.36
10	Hi-Seed Narrag.	61-43	3.04	.40	.67	4.11
11	Hi-Seed Narrag.	62-30	3.03	.33	.60	3.91
12	Cherokee	62-67	2.39	.34	.63	3.35
13	Uinta	62-48	2.60	.27	.58	3.46
14	Fr. Langmeiler	62-53	3.07	.45	.71	4.23
15	Flamande	62-54	3.12	.51	.85	4.48
16	Alfa	62-63	2.96	.42	.69	4.07
17	Multiple Leaf	61-60	2.66	.44	.76	3.86
18	W.R. Narrag.	60-21	2.57	.44	.47	3.48
19	W.R. Flemish	60-22	2.56	.44	.71	3.70
20	Comb. E NY609	61-8	2.44	.45	.64	3.54
21	Comb. E A58-10	61-40	2.43	.49	.58	3.50
22	Comb. E NY617	61-16	2.61	.46	.60	3.68
	Average		2.71	.38	.63	3.72
	F-entries		3.83**	1.28-	2.32**	3.22**
	L.S.D. (p=.05)		.37	.21	.18	.55
	C.V. %		11.1	43.8	22.9	11.8

Notes: Good first growth then no rain rest of growing season. Area very stoney. High variability expected in this trial.

Table 27. 1962 Alfalfa Varieties and Synthetics - New York Cage Increases

Location: McGowan 1963 Data

Yield - Tons per acre - 12% Moisture

Random Number	Entry Identification	Clone Combination	1st Hvst. 6/13	2nd Hvst. 7/30	3rd Hvst. 9/13	Total Season	Vigor & Stand (10=best) 7/24
1	A58-1	$(9,14,18,19)_2$	2.15	1.65	1.25	5.05	9.0
2	A58-2	$(18,40,72,75)_2$	2.09	1.58	1.14	4.81	8.2
3	A58-3	$(14,19,55,75)_2$	2.16	1.55	1.10	4.81	8.0
4	A58-4	$(C\text{-}91,55,72,75)_2$	2.16	1.76	1.20	5.12	9.0
5	A58-5	$(14,18,40,55)_2$	1.99	1.67	1.24	4.90	8.6
6	A58-6 (1-3)	(49-9x49-14)DCC	1.96	1.77	1.31	5.04	8.8
7	A58-7 (1-3)	(49-9x49-18)DCC	1.93	1.67	1.24	4.83	8.6
8	A58-7 (2-4)	(49-14x49-18)DCC	1.69	1.65	1.21	4.55	8.6
9	A58-9	$(9,19,40,55)_2$	2.22	1.58	1.10	4.91	8.4
10	A58-10	$(C\text{-}91,19,72,75)_2$	2.19	1.73	1.13	5.04	8.6
11	A58-11	$(C\text{-}91,18,40,72)_2$	2.03	1.52	1.06	4.61	8.0
12	A58-12	$(9,14,18,19)_2$	2.10	1.73	1.24	5.06	9.2
13	A58-1	$(9,14,18,19)_2$	2.19	1.79	1.28	5.27	9.4
14	A58-5	$(14,18,40,55)_2$	2.08	1.86	1.32	5.26	10.0
15	A58-6 (1-3)	(49-9x49-14)DCC	1.81	1.79	1.26	4.86	9.2
16	A58-8 (1-3)	(49-9x49-18)DCC	2.08	1.68	1.17	4.93	8.8
17	A58-8 (2-4)	(49-14x49-19)DCC	2.18	1.65	1.24	5.07	9.0
18	A58-9	$(9,19,40,55)_2$	2.08	1.69	1.15	4.93	8.8
19	A58-10	$(C\text{-}91,19,72,75)_2$	2.14	1.84	1.20	5.18	9.4
20	A58-12	$(9,14,18,19)_2$	1.90	1.78	1.26	4.95	9.4
21	A58-13		2.11	1.09	.79	4.00	5.2
22	A58-13 (1-3-5)		2.17	1.11	.66	3.94	4.6
23	Cayuga		2.23	1.77	1.22	5.23	9.2
24	Vernal		2.32	1.50	1.02	4.84	7.6
25	Ranger		1.89	1.63	1.05	4.57	8.6
	Average		2.07	1.64	1.15	4.87	
	"F" Entries		1.32 -	6.95**	12.28**	4.39**	
	L.S.D. (P=.05)		.36	.20	.12	.45	
	C.V. (%)		13.6	9.7	8.5	7.3	

Table 28. 1961 Alfalfa Variety Trial - Jefferson Co.
Location: Pierrepont Manor, N.Y. 1963 Data

Random Number	Entry	New York Seed Lot #	Yield - Tons per Acre 1st cut 6/20	2nd cut 7/31	3rd cut 9/12	Season Total	% Alfalfa 6/20	7/31
1	Multiple-leaf-Bulk	61-60	2.14	.76	1.00	3.89	30	87
2	Hi-Seed Narr.--Idaho	61-43	1.99	.51	.64	3.15	19	65
3	W. R. Narrag.	60-21	2.29	.55	.69	3.53	17	69
4	Cayuga-Cal.-59	60-19	2.24	.31	.51	3.05	8	43
5	Cayuga-Breeders-60	61-44	2.31	.36	.54	3.22	12	53
6	NK-507	61-51	2.27	.69	.85	3.81	22	71
7	NK-508	61-50	2.23	.84	.89	3.96	15	84
8	Culver	61-64	2.13	.37	.49	2.99	8	43
9	Vernal (Cert.)	61-52	2.27	.44	.34	3.04	14	60
10	Narrag. (Cert.)	61-54	2.36	.58	.74	3.69	16	69
11	Arnim	60- 5	2.13	.46	.60	3.19	18	52
12	A58-9 (9,19,40,55) Syn 2	61-39	2.13	.43	.57	3.13	12	47
13	NY627 (55x91)SC	61-26	2.14	.36	.45	2.96	9	39
14	NY623 (40x55)SC	61-22	2.15	.20	.35	2.71	6	30
15	NY614 (72x75)x(55x91) DC	61-13	2.11	.44	.49	3.04	14	46
16	NY607 (14,18,40,55) Syn 2	61- 6	2.15	.38	.59	3.12	12	54
17	NY608 (9,19,40,55) Syn 2	61- 7	2.26	.40	.54	3.21	14	47
18	NY610 (C91,18,40,72) Syn 2	61- 9	2.23	.32	.38	2.93	8	36
19	Ranger	61-55	1.95	.33	.40	2.68	10	36
20	DuPuits	61-53	1.99	.37	.45	2.81	23	47
21	F.D. 100	60-38	1.90	.69	.66	3.25	27	71
22	W.R. Flemish	60-22	2.16	.60	.76	3.52	28	69
	Ave.		2.15	.47	.59	3.22		
	F-Entries		1.56-	3.92**	4.25**	2.75**		
	L.S.D. (P=.05)		.27	.23	.24	.62		
	C.V. (%)		9.9	38.6	32.7	15.2		

Notes: (1) Yield performance in 1963 closely parallels 1962. Composition estimates show yield is a function of stand and vigor. Many plots still had relatively good shands and very low vigor. Multi-leaf, 507, 508, Saranac are best and Narragansett entries good. None of the synthetics are good. Single crosses poorest. Limiting environmental factors are still not clear.

Table 29. 1962 Alfalfa Variety Trial
Location: Canton, N.Y. - A.T.I. 1963 data

Yield - Tons/acre (12%M)

Random Number	Entry	N.Y. No.	6/20	7/31	9/12	Total Season	% Alfalfa 6/20	% Alfalfa 7/31
1	Cayuga	62-62	2.31	1.32	1.39	5.03	62	92
2	Cayuga	62-64	2.23	1.07	1.44	4.73	50	93
3	AT 525	62-70	2.39	1.20	1.46	5.05	55	89
4	DuPuits	62-60	2.46	1.43	1.73	5.62	66	98
5	Ranger	62-58	2.14	1.10	1.48	4.71	58	93
6	Culver	62-65	2.30	1.17	1.34	4.81	53	92
7	Vernal	62-57	2.44	1.19	1.48	5.11	58	91
8	CL-10	62-61	2.26	1.35	1.54	5.15	70	100
9	Narrag.	62-56	2.10	1.28	1.69	5.07	68	97
10	Hi-Seed Narrag.	61-43	2.54	1.39	1.66	5.59	68	99
11	Hi-Seed Narrag.	62-30	2.35	1.35	1.67	5.37	58	96
12	Cherokee	62-67	2.32	1.22	1.66	5.19	68	99
13	Uinta	62-48	2.07	1.23	1.59	4.89	50	91
14	Fr. Langmeiler	62-53	2.30	1.27	1.63	5.20	59	96
15	Flamande	62-54	2.41	1.36	1.64	5.41	59	97
16	Alfa	62-63	2.44	1.40	1.75	5.59	70	100
17	Multiple Leaf	61-60	2.18	1.37	1.64	5.19	60	94
18	W.R. Narrag.	60-21	2.45	1.34	1.47	5.26	51	93
19	W.R. Flemish	60-22	2.35	1.49	1.80	5.64	59	100
20	Comb. E NY 609	61-6	2.38	1.32	1.37	5.07	52	97
21	Comb. E A58-10	61-40	2.35	1.31	1.45	5.10	49	93
22	Comb. E NY617	61-16	2.42	1.31	1.44	5.17	64	92
	Average		2.33	1.31	1.56	5.18		
	F-entries		1.37-	1.87*	2.41**	2.10*		
	L.S.D. (P=.05)		.29	.22	.24	.53		
	C.V. (%)		10.0	13.3	12.3	8.1		

Notes: Stands fair in all entries. There was considerable variability in vigor of entries in first harvest, also in quack grass. Last 2 cuts were mostly alfalfa and all entries had good vigor. This slow take off was observed in previous rotation at this site.

Stem-nematode resistance of N. C. Syn. N1 was approximately the same in Syn. 1 and Syn. 2 as measured by seedling tests in the laboratory (Table 30). This synthetic resulted from the second backcross to Flemish type alfalfas of a cross between a resistant Nevada clone and selected Flemish plants. Syn. N2 derived as a result of seedling selection for resistance in Cherokee showed increased resistance over Cherokee. Small quantities of seed of N.C. Syn. N1 are available for testing in field plots.

A number of P.I.'s of M. falcata, M. sativa var. gaetula and M. sativa were evaluated for resistance to oviposition by the alfalfa weevil using egg clusters/stem as a criterion of resistance (Table 31). A number of falcata accessions plus 2 additional gaetula and 1 sativa accessions appear to have resistance as evidenced by less than 2 egg clusters per stem. Further evaluation of these introductions is needed to determine the actual level of resistance present.

The average yield of 78 two-clone crosses (2 years' data) was 14% above the best check variety (Table 32). Five crosses were more than 28% above the best check while one cross yielded 44% above the best check. If these results from closely spaced 10 plant plots can be duplicated in seeded plots, two-clone crosses should offer considerable improvement over present varieties.

S_1 and polycross progenies of 63 clones from MSA and 61 clones from MSB were evaluated for forage yield (Table 33 and 34). Genetic C.V.'s in the S_1 progeny test were approximately 1.7 times those of the polycross progeny test in both germplasm pools. The primary question to be answered from these tests was which type of progeny test can be used to select the

best individuals for use in synthetics or 2-clone combinations? If the upper 10%, i.e. 6 plants, are selected on the basis of S_1 progeny yields, only 1 in population A and none in population B will be in the 6 which would have been selected on the basis of polycross progeny performance. Although scatter diagrams of the data indicate a possible small positive correlation between polycross and S_1 yields, neither is a good predictor of the other. Thus, resolution of the question of S_1 vs. polycross progenies must await testing of individuals selected on each basis in appropriate combinations.

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Table 30. Reaction of alfalfa varieties and synthetics to the stem nematode based on seedling inoculation.

Entry	Number of seedlings tested	Percent of seedlings		
		Resistant	Intermediate	Susceptible
Lahontan	39	82	13	5
DuPuits	39	33	21	46
N.C. Syn. N1(Syn. 1)	67	64	16	20
" " " (Syn. 2)	54	68	6	26
Cherokee	71	15	25	60
N.C. Syn. N2(Syn. 1)	56	47	17	36

Table 31. A-119. Weevil test of plant introduction. Location: Plastic greenhouse, Western Blvd. 6 plant plots; randomized complete block; 6 replications; 2 reps/cage; plants spaced 3" x 3". Planted 7-30-62.

Acc. No.	Description	Egg clusters/stem
M. falcata entries		
62-10	PI 204459	4.1
62-11	PI 204460	5.9
62-12	PI 204885	7.2
62-13	PI 204886	2.5
62-14	PI 206456	3.0
62-15	PI 228151	4.0
62-16	PI 231731	1.2
62-17	PI 233750	3.8
62-18	PI 234787	3.0
62-19	PI 234815	0
62-20	PI 235021	0
62-24	PI 251688	4.2
62-26	PI 251690	7.0
62-27	PI 251830	2.4
62-28	PI 251831	3.8
62-29	PI 253431	1.3
62-30	PI 253445	1.0
62-31	PI 258750	0
62-32	PI 258751	0
62-33	PI 258752	6.8
62-34	PI 258754	.3
62-35	PI 258757	5.6
62-36	PI 260246	4.4
62-37	PI 260247	9.1
62-38	PI 260993	5.0
62-39	PI 262532	.4
62-40	PI 263154	.4
M. sativa gaetula		
62-1	PI 277708	2.8
62-2	PI 277706	.8
62-3	PI 277705	1.3
62-21	PI 239954	6.0
62-22	PI 239955	3.0
62-23	PI 239956	6.4
M. sativa entries		
62-4	(C 318 x M 247)F_2	6.6
62-5	(M 247 x M 265)F_2	2,4
62-6	(M 265 x M 247)F_2	1.2
62-7	(NY 49-18 x M265)F_2	6.2
62-25	PI 251689	1.8
Cherokee		6.6
Cherokee		7.6
Cherokee		5.4

Table 32. A-109. 13 x 13 diallel including reciprocals. 10 plant plots: plants on 1 ft. centers. Experimental design; 9 x 9 simple lattice repeated. Fertilization: 600# 2-12-12 w/borax per acre at planting; 700# 0-9-27 w/borax per acre annually. Reps. 1, 2 and 3 transplanted 9-8-61; Rep. 4 transplanted 9-11-61. Pittsboro, N. C., O'Neal farm.

Entry	Dry wt., lbs. per plant, Cutting date 5-1-63	6-6-63	7-2-63	8-8-63	Total	Total 1962	Spring[1/] Growth 4-1-63
I 48-11 x I 48-73	.036	.038	.035	.016	.125	.130	7.8
I 48-73 x I 48-11	.027	.025	.026	.011	.089	.095	7.8
I 48-11 x I 48-80	.041	.034	.041	.026	.142	.195	8.0
I 48-80 x I 48-11	.035	.030	.046	.019	.130	.142	7.3
I 48-11 x I 48-116	.041	.038	.039	.019	.137	.124	7.5
I 48-116 x I 48-11	.032	.032	.031	.019	.114	.122	6.8
I 48-11 x I 54-30	.039	.032	.034	.018	.123	.133	7.3
I 54-30 x I 48-11	.036	.032	.033	.019	.120	.136	8.0
I 48-11 x I 54-56	.031	.030	.034	.028	.123	.151	7.5
I 54-56 x I 48-11	.050	.037	.039	.022	.148	.156	7.5
I 48-11 x I 54-125	.042	.033	.033	.019	.127	.136	6.0
I 54-125 x I 48-11	.039	.022	.029	.016	.106	.084	5.8
I 48-11 x I 54-375	.030	.031	.029	.018	.108	.125	7.5
I 54-375 x I 48-11	.039	.039	.037	.027	.142	.151	8.3
I 48-11 x N.C. 182-4C	.040	.038	.038	.015	.131	.138	9.3
N.C. 182-4C x I 48-11	.032	.032	.032	.015	.111	.126	8.3
I 48-11 x N.C.1014-4C	.042	.050	.037	.017	.146	.149	7.0
N.C.1014-4C x I 48-11	.031	.028	.040	.011	.110	.110	6.5
I 48-11 x N.C.1103-4B	.034	.034	.035	.023	.126	.133	8.3
N.C.1103-4B x I 48-11	.037	.028	.036	.028	.129	.119	7.5
I 48-11 x Pa 53-13	.039	.038	.045	.024	.146	.152	8.0
Pa 53-13 x I 48-11	.031	.031	.036	.018	.116	.131	8.5
I 48-11 x N.C. 103	.034	.032	.041	.023	.130	.128	8.8
N.C. 103 x I 48-11	.033	.027	.036	.019	.115	.127	8.3
I 48-73 x I 48-80	.030	.030	.037	.022	.119	.106	7.8
I 48-80 x I 48-73	.034	.035	.036	.027	.132	.133	8.8
I 48-73 x I 48-116	.037	.038	.043	.023	.141	.123	8.5
I 48-116 x I 48-73	.034	.037	.033	.020	.124	.104	8.0
I 48-73 x I 54-30	.039	.041	.035	.021	.136	.121	8.3
I 54-30 x I 48-73	.036	.039	.035	.017	.127	.109	7.5
I 48-73 x I 54-56	.040	.038	.045	.019	.142	.132	8.0
I 54-56 x I 48-73	.044	.040	.046	.019	.149	.146	8.0
I 48-73 x I 54-125	.040	.031	.041	.022	.134	.136	7.0
I 54-125 x I 48-73	.043	.040	.039	.026	.148	.170	7.8

1/ measured in inches

Table 32. (Continued)

Entry	Dry Wt. #/ plant Cutting date 5-1-63	6-6-63	7-2-63	8-8-63	Total	Total 1962	Spring Growth 4-1-63
I 48-73 x I 54-375	.037	.036	.032	.017	.122	.158	8.0
I 54-375 x I 48-73	.032	.038	.034	.017	.121	.143	7.3
I 48-73 x NC 182-4C	.043	.044	.038	.016	.141	.145	9.3
NC 182-4C x I 48-73	.042	.042	.037	.019	.140	.142	10.0
I 48-73 x NC 1014-4C	.045	.040	.040	.024	.149	.130	7.8
NC 1014-4C x I 48-73	.033	.035	.038	.021	.127	.125	8.0
I 48-73 x NC 1103-4B	.045	.041	.037	.016	.139	.142	7.5
NC 1103-4B x I 48-73	.041	.040	.036	.016	.133	.138	7.5
I 48-73 x Pa. 53-13	.038	.041	.047	.033	.159	.159	8.0
Pa. 53-13 x I 48-73	.051	.049	.053	.027	.180	.178	10.8
I 48-73 x NC 103	.036	.037	.030	.021	.124	.144	8.3
NC 103 x I 48-73	.035	.029	.031	.019	.114	.139	8.3
I 48-80 x I 48-116	.033	.028	.034	.020	.115	.125	7.0
I 48-116 x I 48-80	.034	.033	.038	.019	.124	.118	8.8
I 48-80 x I 54-30	.040	.035	.038	.022	.135	.138	8.8
I 54-30 x I 48-80	.033	.032	.030	.018	.113	.121	8.0
I 48-80 x I 54-56	.034	.023	.030	.016	.103	.155	8.3
I 54-56 x I 48-80	.040	.032	.038	.023	.133	.166	8.5
I 48-80 x I 54-125	.045	.038	.043	.023	.149	.148	7.8
I 54-125 x I 48-80	.037	.028	.034	.020	.119	.115	7.5
I 48-80 x I 54-375	.037	.031	.034	.021	.123	.157	9.0
I 54-375 x I 48-80	.040	.036	.041	.026	.143	.168	8.8
I 48-80 x NC 182-4C	.041	.034	.036	.017	.128	.142	10.8
NC 182-4C x I 48-80	.036	.029	.034	.019	.118	.130	9.8
I 48-80 x NC 1014-4C	.034	.026	.030	.015	.105	.121	7.3
NC 1014-4C x I 48-80	.040	.032	.033	.017	.122	.136	7.5
I 48-80 x NC 1103-4B	.033	.032	.037	.020	.122	.132	7.3
NC 1103-4B x I 48-80	.039	.036	.037	.023	.135	.139	8.0
I 48-80 x Pa. 53-13	.035	.045	.036	.016	.132	.134	8.8
Pa. 53-13 x I 48-80	.038	.038	.042	.021	.139	.146	8.5
I 48-80 x NC 103	.040	.032	.037	.020	.129	.177	8.5
NC 103 x I 48-80	.036	.034	.036	.020	.126	.126	8.5
I 48-116 x I 54-30	.029	.028	.037	.019	.113	.114	7.8
I 54-30 x I 48-116	.037	.028	.032	.016	.113	.111	8.3
I 48-116 x 54-56	.040	.036	.036	.021	.133	.127	8.5
I 54-56 x I 48-116	.037	.031	.037	.019	.124	.135	8.0
I 48-116 x 54-125	.030	.027	.034	.015	.106	.095	6.0
I 54-125 x I 48-116	.033	.023	.030	.015	.101	.093	6.5
I 48-116 x I 54-375	.037	.036	.039	.023	.135	.119	8.0
I 54-375 x I 48-116	.029	.027	.033	.024	.113	.129	8.8

Table 32. (continued)

Entry	Dry Wt. #/plant Cutting date 5-1-63	6-6-63	7-2-63	8-8-63	Total	Total 1962	Spring Growth 4-1-63
I 48-116 x NC 182-4C	.034	.035	.042	.025	.136	.142	8.8
NC 182-4C x I 48-116	.043	.034	.039	.026	.142	.148	9.8
I 48-116 x NC 1014-4C	.038	.028	.037	.020	.123	.129	7.3
NC 1014-4C x I 48-116	.047	.037	.039	.019	.142	.132	7.3
I 48-116 x NC 1103-4B	.030	.023	.029	.017	.099	.114	6.8
NC 1103-4B x I48-116	.031	.027	.034	.021	.113	.131	7.3
I 48-116 x Pa. 53-13	.036	.032	.040	.019	.127	.132	8.0
Pa. 53-13 x I 48-116	.041	.040	.046	.022	.149	.138	8.8
I 48-116 x NC 103	.043	.035	.047	.025	.150	.142	9.3
NC 103 x I 48-116	.040	.036	.048	.031	.155	.134	9.0
I 54-30 x I 54-46	.034	.027	.030	.017	.108	.129	7.3
I 54-46 x I 54-30	.036	.031	.033	.021	.121	.131	8.8
I 54-30 x I 54-125	.035	.031	.033	.019	.118	.147	7.0
I 54-125 x I 54-30	.037	.031	.034	.020	.122	.131	7.8
I 54-30 x I 54-375	.033	.030	.028	.018	.109	.163	8.3
I 54-375 x I 54-30	.034	.030	.028	.019	.111	.126	8.5
I 54-30 x NC 182-4C	.036	.030	.023	.014	.103	.125	8.8
NC 182-4C x I 54-30	.037	.032	.030	.018	.117	.141	8.3
I 54-30 x NC 1014-4C	.036	.030	.033	.019	.118	.131	7.5
NC 1014-4C x I 54-30	.040	.037	.042	.021	.140	.142	9.5
I 54-30 x NC 1103-4B	.037	.029	.029	.018	.113	.136	6.8
NC 1103-4B x I 54-30	.036	.034	.030	.017	.117	.140	8.3
I 54-30 x Pa. 53-13	.036	.036	.036	.020	.128	.153	9.3
Pa. 53-13 x I 54-30	.030	.029	.031	.019	.109	.128	9.5
Atlantic	.041	.043	.040	.025	.149	.148	8.8
NC 103 x I 54-30	.033	.026	.024	.016	.099	.103	8.0
I 54-56 x I 54-125	.036	.029	.035	.015	.115	.113	7.0
I 54-125 x I 54-56	.033	.024	.030	.015	.102	.097	6.8
I 54-56 x 54-375	.031	.027	.032	.021	.111	.129	8.5
I 54-375 x I 54-56	.038	.034	.026	.021	.119	.142	7.5
I 54-56 x NC 182-4C	.037	.031	.035	.020	.123	.147	9.8
NC 182-4C x I 54-56	.044	.030	.034	.021	.129	.151	10.3
I 54-56 x NC 1014-4C	.035	.032	.038	.022	.127	.123	7.3
NC 1014-4C x I 54-56	.037	.037	.036	.018	.128	.153	7.0
I 54-56 x NC 1103-4B	.040	.036	.045	.021	.142	.139	8.3
NC 1103-4B x I 54-56	.040	.039	.048	.023	.150	.128	8.3
I 54-56 x Pa. 53-13	.040	.036	.041	.017	.134	.155	9.3
Pa. 53-13 x I 54-56	.039	.034	.041	.027	.141	.173	8.5
I 54-56 x NC 103	.046	.035	.037	.015	.133	.130	7.8
NC 103 x I 54 x 56	.031	.027	.027	.016	.101	.143	7.8

Table 32. (continued)

Entry	Dry Wt. #/plant Cutting date 5-1-63	6-6-63	7-2-63	8-8-63	Total	Total 1962	Sprin Growt 4-1-6
I 54-125 x 54-375	.030	.033	0.34	.019	.116	.130	8.5
I 54-375 x I 54-125	.036	.032	.037	.022	.127	.149	7.5
I 54-125 x NC 182-4C	.037	.034	.034	.019	.124	.125	8.5
NC 182-4C x I 54-125	.036	.033	.036	.022	.127	.128	8.3
I 54-125 x NC 1014-4C	.048	.032	.040	.020	.140	.126	7.0
NC 1014-4C x I 54-125	.040	.036	.039	.020	.135	.123	7.8
I 54-125 x NC 1103-4B	.028	.026	.028	.015	.097	.122	5.8
NC 1103-4B x I 54-125	.032	.030	.034	.020	.116	.126	6.0
I 54-125 x Pa. 53-13	.035	.034	.037	.018	.124	.136	8.0
Pa. 53-13 x I 54-125	.037	.033	.041	.017	.128	.132	8.0
I 54-125 x NC 103	.041	.037	.041	.023	.142	.145	7.8
NC 103 x I 54-125	.036	.033	.034	.020	.123	.132	7.5
I 54-375 x NC 182-4C	.034	.036	.036	.022	.128	.120	9.0
NC 182-4C x I 54-375	.045	.042	.042	.023	.152	.148	8.8
I 54-375 x NC 1014-4C	.036	.035	.041	.021	.133	.133	7.5
NC 1014-4C x I 54-375	.046	.044	.046	.022	.158	.186	7.8
I 54-375 x NC1103-4B	.039	.040	.029	.023	.131	.125	7.8
NC 1103-4B x I 54-375	.040	.036	.037	.020	.133	.136	8.0
I 54-375 x Pa. 53-13	.039	.037	.040	.023	.139	.141	9.5
Pa. 53-13 x I 54-375	.038	.036	.038	.024	.136	.128	10.5
I 54-375 x NC 103	.035	.037	.036	.021	.129	.131	8.3
NC 103 x I 54-375	.038	.035	.038	.022	.133	.134	8.3
NC 182-4C x NC 1014-4C	.038	.039	.039	.022	.138	.138	9.0
NC 1014-4C x NC 182-4C	.037	.038	.036	.018	.129	.146	9.0
NC 182-4C x NC 1103-4B	.037	.034	.037	.020	.128	.143	8.3
NC 1103-4B x NC 182-4C	.038	.035	.034	.018	.125	.133	9.3
NC 182-4C x Pa. 53-13	.039	.040	.044	.024	.147	.158	10.5
Pa. 53-13 x NC 182-4C	.034	.034	.033	.021	.122	.122	9.5
NC 182-4C x NC 103	.041	.037	.036	.019	.133	.126	9.3
NC 103 x NC 182-4C	.036	.035	.033	.016	.120	.121	9.3
NC 1014-4C x NC 1103-4B	.030	.028	.027	.015	.100	.128	7.5
NC 1103-4B x NC 1014-4C	.039	.035	.038	.018	.130	.150	8.3
NC 1014-4C x Pa. 53-13	.039	.036	.041	.025	.141	.162	9.0
Pa. 53-13 x NC 1014-4C	.035	.033	.048	.024	.140	.154	8.5
NC 1014-4C x NC 103	.042	.044	.042	.026	.154	.160	8.8
NC 103 x NC 1014-4C	.044	.038	.042	.029	.153	.148	9.5
NC 1103-4B x Pa. 53-13	.034	.034	.037	.019	.124	.124	8.0
Pa. 53-13 x NC 1103-4B	.034	.035	.038	.021	.128	.146	9.3
NC 1103-4B x NC 103	.036	.034	.032	.020	.122	.141	8.0
NC 103 x NC 1103-4B	.031	.027	.028	.014	.100	.117	8.3

Table 32. (continued)

Entry	Dry Wt. #/plant Cutting date 5-1-63	6-6-63	7-2-63	8-8-63	Total	Total 1962	Spring Growth 4-1-63
Pa. 53-13 x NC 103	.043	.042	.044	.024	.153	.143	9.8
NC 103 x Pa. 53-13	.029	.029	.028	.018	.104	.114	8.0
Atlantic	.034	.032	.034	.015	.115	.104	7.8
Atlantic	.038	.041	.037	.019	.135	.115	8.8
Williamsburg	.028	.025	.032	.017	.102	.112	8.5
Williamsburg	.024	.024	.029	.014	.091	.098	7.5
DuPuits	.031	.034	.030	.014	.109	.114	9.0
DuPuits	.035	.036	.031	.011	.113	.121	8.8

Table 33. A-108. S_1 progeny test of clones from Pools A and B. 10 plant plots; spaced on 1 ft. centers. Transplanted September 7, 1961. Fertilization: 600# 2-12-12 W/borax at transplanting. 700# 0-9-27 W/borax annually.
Location: Pittsboro, N. C., O'Neal Farm.

Entries	Spring[1/] growth 4-1-63	Dry Wt. # per plant Cutting Dates 5-3-63	6-6-63	7-2-63	Total
A-1	7.0	.026	.023	.024	.073
2	6.8	.016	.014	.016	.046
4	8.0	.039	.030	.035	.104
7	7.3	.032	.022	.023	.077
8	6.8	.027	.022	.021	.070
10	8.8	.045	.038	.039	.122
11	6.5	.037	.034	.038	.109
12	7.8	.036	.029	.025	.090
Atlantic	8.5	.053	.049	.051	.153
A-14	7.0	.042	.033	.028	.103
15	7.5	.029	.031	.024	.084
16	7.3	.029	.022	.014	.065
17	6.3	.030	.022	.019	.071
18	7.3	.036	.028	.021	.085
20	7.5	.029	.024	.024	.077
21	6.5	.026	.019	.020	.065
22	7.0	.041	.027	.023	.091
23	9.0	.031	.026	.024	.081
Atlantic	8.0	.049	.048	.046	.143
A-24	6.3	.028	.030	.029	.087
25	8.5	.027	.022	.028	.077
26	6.0	.023	.022	.025	.070
28	6.5	.027	.024	.031	.082
29	8.0	.028	.027	.023	.078
30	5.3	.018	.014	.015	.047
32	6.3	.029	.025	.027	.081
33	6.5	.027	.021	.025	.073
Atlantic	8.0	.045	.041	.044	.130
35	6.8	.024	.041	.021	.086
A-36	7.8	.032	.028	.022	.082
42	7.8	.034	.029	.022	.085
43	5.5	.021	.017	.016	.054
44	7.5	.023	.028	.027	.078
49	6.5	.030	.027	.021	.078
50	6.3	.024	.026	.022	.072
52	7.0	.028	.024	.024	.076
55	6.3	.031	.023	.022	.076
Atlantic	8.8	.046	.043	.040	.129

Table 33. A-108 (continued)

Entries	Spring[1/] growth 4-1-63	Dry Wt. # per plant Cutting Dates 5-3-63	6-6-63	7-2-63	Total
A-57	7.8	.037	.028	.025	.090
58	5.0	.022	.018	.018	.058
60	8.8	.041	.029	.030	.100
61	6.8	.025	.022	.021	.068
62	4.3	.020	.013	.013	.046
64	7.0	.025	.021	.026	.072
65	6.0	.035	.027	.026	.088
67	6.8	.032	.026	.020	.078
Atlantic	8.3	.043	.044	.046	.133
A-68	7.3	.021	.015	.010	.046
69	7.0	.030	.027	.027	.084
70	9.0	.039	.034	.037	.110
72	3.5	.026	.026	.023	.075
73	9.0	.020	.017	.017	.054
75	6.5	.032	.023	.023	.078
78	5.8	.021	.013	.015	.049
81	8.0	.038	.029	.030	.097
82	8.5	.038	.028	.031	.097
Atlantic	9.0	.042	.040	.047	.129
A-83	8.0	.030	.025	.027	.082
84	4.5	.026	.031	.027	.084
86	7.5	.032	.021	.020	.073
88	8.0	.028	.021	.024	.073
91	5.3	.030	.028	.024	.082
92	8.5	.031	.030	.029	.090
94	7.0	.026	.021	.025	.072
95	7.0	.036	.028	.024	.088
96	6.8	.034	.032	.023	.089
Atlantic	8.3	.046	.042	.043	.131
A- 99	6.5	.017	.019	.021	.057
100	6.5	.020	.017	.016	.053
101	7.8	.019	.021	.021	.061
Atlantic	8.0	.039	.038	.040	.117
B- 3	7.5	.028	.028	.024	.080
5	7.5	.025	.026	.027	.078
6	8.8	.033	.029	.029	.091
7	6.5	.031	.031	.027	.089
10	8.8	.035	.029	.031	.095
11	6.5	.016	.011	.015	.042
13	6.3	.019	.013	.018	.050
14	6.5	.020	.016	.017	.053
15	8.3	.028	.022	.026	.076
Atlantic	8.3	.045	.042	.051	.138

Table 33. A-108 (continued)

Entries	Spring[1/] growth 4-1-63	Dry Wt. # per plant Cutting Dates 5-3-63	6-6-63	7-2-63	Total
B- 17	7.5	.026	.028	.024	.078
18	6.0	.032	.027	.026	.085
20	6.0	.030	.024	.023	.077
21	7.3	.038	.048	.053	.139
22	6.3	.023	.023	.027	.073
28	6.3	.031	.029	.021	.081
30	5.8	.015	.016	.015	.046
33	6.0	.015	.015	.012	.042
34	6.3	.019	.017	.017	.053
Atlantic	9.3	.047	.045	.049	.141
B- 35	7.0	.021	.021	.019	.061
38	8.0	.026	.020	.026	.072
40	5.0	.027	.025	.020	.072
42	7.0	.036	.027	.038	.101
43	5.3	.030	.029	.031	.090
45	8.5	.036	.033	.034	.103
46	7.0	.027	.032	.036	.095
47	6.8	.014	.013	.012	.039
48	8.3	.024	.025	.024	.073
Atlantic	8.5	.049	.050	.052	.151
B- 49	8.5	.026	.022	.017	.065
50	7.3	.032	.028	.028	.088
52	6.5	.021	.019	.018	.058
53	6.3	.023	.015	.013	.051
56	6.5	.019	.022	.024	.065
57	7.8	.033	.035	.036	.104
59	6.5	.023	.021	.031	.075
60	5.8	.027	.022	.021	.070
62	6.0	.024	.022	.021	.067
Atlantic	7.5	.053	.045	.044	.142
B- 63	6.8	.030	.026	.026	.082
64	6.8	.036	.032	.034	.102
66	7.5	.041	.033	.031	.105
67	5.8	.023	.014	.016	.053
68	5.5	.013	.009	.012	.034
69	6.3	.026	.022	.024	.072
70	6.0	.025	.019	.020	.064
71	6.3	.021	.018	.022	.061
72	6.0	.031	.023	.014	.068
Atlantic	8.3	.053	.048	.048	.149
B- 73	7.3	.026	.023	.021	.070
74	6.0	.018	.016	.013	.047
75	5.5	.029	.021	.025	.075
77	6.5	.019	.017	.019	.055
78	4.8	.016	.014	.012	.042
80	7.3	.028	.019	.016	.063
84	7.0	.038	.031	.023	.092

Table 33. A108 (continued)

Entries	Spring growth 4-1-63	Dry Wt. # per plant Cutting Dates 5-3-63	6-6-63	7-2-63	Total
B- 85	4.5	.014	.013	.014	.041
87	6.5	.027	.017	.023	.067
Atlantic	9.5	.042	.044	.046	.132
B- 89	7.8	.025	.015	.018	.058
91	6.0	.024	.023	.025	.072
92	5.8	.025	.014	.017	.056
95	5.3	.016	.018	.021	.055
96	6.5	.032	.028	.032	.092
97	7.5	.024	.024	.029	.076
101	5.8	.027	.027	.026	.080
Atlantic	7.8	.048	.046	.048	.142
Means					
A entries	6.98				.077
B entries	6.66				.071
Atlantic in A blocks	8.36				.133
Atlantic in B blocks	8.45				.142

1/ Height in inches

Table 34. A-112. Polycross progeny test of Pool A and Pool B clones. Single row plots 15' long; 1 ft. between rows. Randomized incomplete block design. Fertilization: 600# 2-12-12 W/borax at seeding; 700# 0-9-27 W/borax annually. Seeded 8-30-61. Pittsboro, North Carolina. O'Neal farm.

Entry	Spring Growth[2/] 4-1-63	# Dry wt./Plot 5-3-63	6-5-63	7-3-63	Total # Dry wt./plot
A- 1	8.3	.49	.39	.45	1.33
A- 2	8.3	.43	.38	.37	1.18
A- 4	9.0	.49	.39	.45	1.33
A- 7	8.5	.64	.43	.52	1.59
A- 8	8.5	.53	.40	.50	1.43
A- 10	9.8	.64	.51	.51	1.66
A- 11	9.3	.56	.44	.54	1.54
A- 12	9.5	.54	.40	.49	1.43
Atlantic	8.3	.47	.41	.40	1.28
A- 14	9.5	.70	.53	.51	1.74
A- 15	9.8	.64	.44	.40	1.48
A- 16	10.0	.61	.42	.41	1.44
A- 17	9.5	.51	.39	.41	1.31
A- 18	10.0	.78	.60	.54	1.92
A- 20	8.5	.56	.36	.44	1.36
A- 21	10.0	.62	.48	.48	1.58
A- 22	9.3	.53	.45	.47	1.45
A- 23	9.5	.51	.37	.47	1.35
Atlantic	9.0	.59	.42	.50	1.51
A- 24	8.0	.38	.30	.47	1.15
A- 25	8.8	.65	.47	.63	1.75
A- 26	8.5	.33	.30	.50	1.13
A- 28	8.6	.60	.47	.53	1.60
A- 29	9.0	.69	.56	.58	1.83
A- 30	8.0	.44	.31	.48	1.23
A- 32	8.0	.52	.36	.52	1.40
A- 33	7.8	.57	.41	.57	1.55
A- 35	9.0	.56	.44	.58	1.58
Atlantic	8.5	.59	.51	.56	1.66
A- 36	8.5	.62	.55	.60	1.77
A- 42	9.0	.56	.42	.46	1.44
A- 43	9.3	.59	.41	.52	1.52
A- 44	9.5	.63	.47	.54	1.64
A- 49	8.8	.53	.42	.48	1.43
A- 50	8.3	.48	.39	.34	1.21
A- 52	9.0	.61	.46	.51	1.58
A- 55	8.8	.51	.36	.44	1.31
Atlantic	8.8	.63	.44	.54	1.61
A- 57	9.5	.63	.47	.44	1.54
A- 58	9.0	.49	.36	.37	1.22
A- 60	9.3	.63	.41	.45	1.49
A- 61	10.0	.56	.44	.45	1.45
A- 62	9.5	.48	.38	.39	1.25
A- 64	9.5	.49	.36	.32	1.17
A- 65	9.0	.65	.49	.45	1.59
A- 67	9.8	.53	.45	.39	1.37
Atlantic	8.8	.59	.52	.43	1.54

Table 34. A-112 (continued)

Entry	Spring Growth[2/] 4-1-63	# Dry wt./Plot 5-3-63	6-5-63	7-3-63	Total # Dry wt./plot
A- 68	8.5	.29	.34	.35	.98
A- 69	7.5	.47	.35	.37	1.19
A- 70	9.3	.53	.47	.46	1.46
A- 72	9.3	.48	.40	.45	1.33
A- 73	10.0	.66	.46	.52	1.64
A- 75	8.5	.57	.47	.51	1.55
A- 78	8.5	.50	.37	.41	1.28
A- 81	9.0	.49	.34	.38	1.21
A- 82	8.5	.55	.37	.44	1.36
Atlantic	8.0	.45	.39	.41	1.25
A- 83	9.0	.50	.37	.39	1.26
A- 84	8.5	.52	.46	.48	1.46
A- 86	8.3	.53	.43	.40	1.36
A- 88	8.5	.50	.42	.41	1.33
A- 91	8.8	.47	.39	.31	1.17
A- 92	10.0	.62	.54	.48	1.64
A- 94	8.3	.39	.30	.28	.97
A- 95	8.5	.50	.34	.35	1.19
A- 96	8.5	.54	.47	.44	1.45
Atlantic	9.0	.61	.52	.56	1.69
A- 99	9.0	.46	.42	.43	1.31
A-100	7.8	.50	.35	.49	1.34
A-101	9.0	.61	.52	.62	1.75
Atlantic	8.5	.55	.49	.61	1.65
B- 3	9.3	.60	.53	.51	1.64
B- 5	9.5	.73	.56	.62	1.91
B- 6	9.3	.70	.57	.60	1.87
B- 7	9.5	.59	.44	.52	1.55
B- 10	9.0	.67	.57	.63	1.87
B- 11	9.0	.60	.45	.47	1.52
B- 13	9.3	.61	.48	.49	1.58
B- 14	9.8	.76	.56	.67	1.99
B- 15	9.0	.71	.55	.68	1.94
Atlantic	9.0	.59	.50	.52	1.61
B- 17	9.0	.58	.51	.62	1.71
B- 18	8.3	.61	.42	.47	1.50
B- 20	8.8	.61	.46	.53	1.60
B- 21	8.8	.66	.52	.64	1.82
B- 22	8.8	.54	.46	.59	1.59
B- 28	8.8	.49	.38	.37	1.24
B- 30	9.0	.35	.27	.22	.84
B- 33	9.0	.58	.46	.43	1.47
B- 34	9.0	.49	.40	.44	1.33
Atlantic	8.8	.67	.52	.55	1.74

Table 34. A-112 (continued)

Entry	Spring Growth 4-1-63	# Dry wt./Plot 5-3-63	6-5-63	7-3-63	Total # Dry wt./plot
B- 35	9.5	.61	.52	.48	1.61
B- 38	9.5	.80	.63	.67	2.10
B- 40	8.8	.66	.50	.54	1.70
B- 42	8.3	.61	.46	.60	1.67
B- 43	8.3	.60	.40	.51	1.51
B- 45	9.0	.69	.54	.52	1.75
B- 46	9.5	.75	.68	.65	2.08
B- 47	9.3	.77	.58	.60	1.95
B- 48	9.0	.61	.50	.56	1.67
Atlantic	9.0	.71	.54	.54	1.79
B- 49	10.3	.64	.53	.54	1.71
B- 50	8.3	.51	.39	.43	1.33
B- 52	8.5	.40	.31	.34	1.05
B- 53	8.8	.47	.37	.46	1.30
B- 56	9.3	.53	.49	.51	1.53
B- 57	9.3	.54	.51	.47	1.52
B- 59	8.8	.57	.44	.47	1.48
B- 60	8.3	.59	.47	.53	1.50
B- 62	8.5	.53	.45	.47	1.45
Atlantic	8.8	.62	.50	.49	1.61
B- 63	8.5	.51	.41	.44	1.36
B- 64	8.5	.60	.56	.60	1.76
B- 66	8.5	.56	.46	.47	1.49
B- 67	8.0	.55	.52	.55	1.62
B- 68	8.5	.49	.42	.53	1.44
B- 69	8.8	.55	.42	.47	1.44
B- 70	8.5	.55	.43	.40	1.38
B- 71	7.8	.54	.41	.48	1.43
B- 72	9.0	.59	.49	.57	1.65
Atlantic	8.8	.55	.46	.54	1.55
B- 73	9.3	.65	.57	.64	1.86
B- 74	8.5	.52	.39	.51	1.42
B- 75	8.5	.59	.39	.53	1.51
B- 77	9.0	.71	.63	.73	2.07
B- 78	8.5	.48	.37	.47	1.32
B- 80	9.0	.56	.41	.45	1.42
B- 84	9.0	.67	.53	.67	1.87
B- 85	8.5	.47	.35	.43	1.25
B- 87	8.3	.61	.48	.67	1.76
Atlantic	9.0	.66	.49	.69	1.84
B- 89	8.8	.52	.51	.51	1.54
B- 91	8.0	.36	.27	.29	.92
B- 92	8.0	.55	.42	.51	1.48
B- 95	8.3	.57	.58	.60	1.75
B- 96	8.3	.50	.41	.43	1.34
B- 97	8.3	.54	.44	.48	1.46
B-101	8.0	.60	.58	.54	1.72
Atlantic	8.8	.61	.48	.52	1.61

Table 34. A-112 (continued)

Entry	Spring Growth 4-1-63	5-3-63	6-5-63	7-3-63	Total # Dry'wt./plot
Means					
A entries	8.94				1.42
B entries	8.80				1.57
Atlantic in A blocks	8.61				1.52
Atlantic in B blocks	8.88				1.67

1/ Height in inches

Table 35 Alfalfa Rate of Seeding and Row Spacing, Simpson Experiment Station, Pendleton (Anderson County), South Carolina, 1961-63. 1/

Seeding rate (pounds/acre)	Seeding method	Yield per acre - oven-dry forage 1961 (tons)	1962 (tons)	1963 (tons)	Average (tons)
30	Broadcast	4.61 a	4.26 a	5.20 a	4.69
30	Drilled-7" rows	4.53 a	4.32 a	5.14 ab	4.66
30	Cross-drilled 7" rows	4.68 a	4.04 ab	5.21 a	4.64
15	Cross-drilled 7" rows	4.47 a	4.16 a	5.18 a	4.60
15	Broadcast	4.43 ab	4.22 a	5.10 ab	4.58
15	Drilled 7" rows	4.11 b	3.92 ab	5.12 ab	4.38
30	Cross-drilled 14" rows	4.11 b	3.91 ab	4.95 abc	4.32
15	Cross-drilled 14" rows	4.08 b	4.01 ab	4.79 bcd	4.29
30	Drilled 14" rows	3.57 c	3.69 bc	4.70 cd	3.99
15	Drilled 14" rows	3.43 c	3.44 c	4.52 d	3.80
Yearly averages		4.20	4.00	4.99	-
Coefficient of variation		6.1%	7.4%	5.5%	-

Treatment	Oven dry forage/acre 2,3/ (tons)
15 pounds	4.33
30 pounds	4.46
Broadcast	4.64
Cross-drilled 7" rows	4.62
Cross-drilled 14" rows	4.30
Drilled 7" rows	4.52
Drilled 14" rows	3.90
Broadcast	4.64
7" rows	4.57
14" rows	4.10
Broadcast	4.64
Cross-drilled	4.46
Drilled	4.21

1/ Test conditions given in variety test table (South Carolina) are also applicable to this test.

2/ Three-year averages

3/ Means followed by one or more of the same letters do not differ significantly at the 5% level; means not followed by a common letter are considered to be different - by Duncan's New Multiple Range Test.

Table 36 Alfalfa Variety and Strains Test, Simpson Experiment Station, Pendleton (Anderson County), South Carolina, 1961-63.

Variety or strain	Yield per acre of oven-dry forage 1/			
	1961 (tons)	1962 (tons)	1963 (tons)	Average (tons)
N. C. E(58)	4.62 a	4.68 a	5.66 a	4.99
N. C. G(57)2	4.51 ab	4.65 a	5.59 a	4.92
N. C. F(56)1	4.52 ab	4.59 a	5.55 a	4.89
N. C. G(57)3	4.56 a	4.45 a	5.31 a	4.77
Du Puits	4.52 ab	4.41 a	5.53 a	4.82
Vernal	4.21 cd	4.59 a	5.25 a	4.68
Oklahoma Common	4.21 cd	4.51 a	5.33 a	4.68
Atlantic	4.25 bcd	4.36 a	5.35 a	4.65
Narragansett	4.11 cde	4.42 a	5.23 a	4.59
Cody	3.90 e	4.39 a	5.24 a	4.51
Moapa	4.02 de	3.81 b	4.46 b	4.10
Indian	3.92 e	3.53 b	4.31 b	3.92
Rambler	1.96 f	3.04*c	4.14*b	3.05
Yearly averages	4.10	4.26	5.15	-
Coefficient of variation	5.3%	8.1%	6.5%	-

* 50% or more crabgrass.

1/ Means followed by one or more of the same letters do not differ significantly at the 5% level; means not followed by a common letter are considered to be different - by Duncan's New Multiple Range Test.

Date of Establishment: October 15, 1960
Design: Randomized complete block (6 replicates)
Plot size: 5' x 20' (harvested 3' x 18')
Seeding rate: 30#/acre
Soil analysis prior to establishment:

	Topsoil	Subsoil
pH	6.6	6.1
P	High	Low
K	Med.	Med.

Fertilization at seeding: 1000 lbs. dolomitic limestone, 500 lbs. superphosphate, 800 lbs. 4-12-12
Annual maintenance fertilization: 800 lbs. 0-10-20 with B
Insecticide treatments: annual applications of heptachlor in fall.

Table 37. 1963 Regional Alfalfa Variety Test, Seeded Fall 1960

Variety	Total Yield	1963 Harvest Dates 5/1	6/3	7/11	8/19
		Tons of air-dry hay per acre			
N.C. Syn. E(58)	5.17	1.35	1.66	1.32	0.84
Williamsburg	5.13	1.33	1.63	1.21	0.96
Buffalo	5.12	1.08	1.61	1.39	1.04
Ranger	5.10	1.40	1.56	1.28	0.86
N.C. Syn. G(57)2	5.03	1.41	1.65	1.14	0.83
N.C. Syn. F(56)1	4.96	1.33	1.74	0.98	0.91
Narragansett	4.84	1.25	1.67	1.00	0.92
Vernal	4.82	1.21	1.60	1.23	0.78
N.C. Syn. G(57)3	4.76	1.28	1.69	0.86	0.92
DuPuits	4.76	1.16	1.66	1.03	0.91
Lahontan	4.74	1.16	1.61	1.12	0.85
Socheville	4.57	1.17	1.56	0.88	0.95
Zia	4.54	1.06	1.51	1.22	0.76
P.A.G. FD-100	4.44	1.07	1.66	0.86	0.84
Maliana	4.39	0.98	1.42	1.09	0.90
Rhizoma	4.38	1.06	1.38	1.06	0.88
L.S.D. (.05)	0.40	----	----	----	----
C.V. %	5.8	----	----	----	----

Design: Randomized complete block, four replications.

Date Seeded: Sept. 16, 1960, broadcast seeding at 20 pounds per acre.

Fertilization: 0-120-120 at seeding plus 20 pounds borax per acre;
0-45-135 plus 20 pounds per acre borax October 10, 1961;
0-72-216 plus 20 pounds per acre borax March 8, 1963.

Soil Type: Cumberland loam (2% to 5% slopes).

Table 38. 1963 Regional Alfalfa Variety Test, Seeded Fall 1961

Variety	Total Yield	1963 Harvest Dates 5/2	6/7	7/10	8/19
		Tons of air-dry hay per acre			
Stoneville P.C.1	3.74	0.66	0.90	1.28	0.91
Ranger	3.60	0.68	0.88	1.18	0.85
Rhizoma	3.46	0.58	0.88	1.06	0.94
Williamsburg	3.36	0.58	0.88	1.18	0.71
N.C. Syn. F(56)1	3.18	0.65	0.86	0.96	0.72
Culver	3.16	0.60	0.86	0.98	0.73
Vernal	3.04	0.58	0.87	0.92	0.68
P.A.G. FD-100	3.02	0.64	0.88	0.83	0.67
N.C. Syn. G(57) 2	2.97	0.54	0.87	0.97	0.58
Narragansett	2.91	0.53	0.86	0.88	0.64
Socheville	2.73	0.52	0.82	0.73	0.65
Orchies	2.72	0.53	0.86	0.86	0.46
Maliani	2.63	0.36	0.66	0.98	0.62
N.C. Syn. G(57) 3	2.62	0.45	0.81	0.82	0.54
Buffalo	2.48	0.48	0.63	0.92	0.46
DuPuits	2.08	0.44	0.67	0.60	0.37
L.S.D. (.05)	N.S.	----	----	----	----
C.V. %	23.2	----	----	----	----

Design: Randomized complet block, four replications.

Date Seeded: August 29, 1961, broadcast seeding of 20 pounds per acre.

Fertilization: 30-120-120 at seeding plus 20 pounds borax per acre;
0-72-216 plus 20 pounds per acre borax on March 8, 1963.

Soil Type: Alcoa silt loam (2% to 5% slopes).

Table 39. Alfalfa: Summary of Disease and Stand Ratings on the Alfalfa Variety Test at Knoxville, Tennessee 1963.[1]

Variety	Southern Anthracnose	Stand Survival
Rhizoma	1.0	2.5
N.C. Syn. E(58)	1.0	2.0
Vernal	1.0	2.8
Narragansett	1.2	3.5
Williamsburg	1.8	1.8
Ranger	1.8	3.0
Zia	1.8	3.8
Buffalo	2.0	1.0
DuPuits	2.2	4.2
N.C. Syn. G(57)3	2.2	4.5
N.C. Syn. G(57)2	2.5	3.0
N.C. Syn. F(56)1	2.8	3.2
P.A.G. FD-100	3.0	4.8
Socheville	3.0	4.8
Maliani	3.0+	1.5
Lahontan	3.0+	1.8

1 The alfalfa test seeded in 1960 was rated for Southern Anthracnose infestation on July 9, 1963 by L. F. Johnson, Associate Professor of Plant Pathology, Knoxville, Tennessee. A scale of 1 (light) to 3 (heavy) was used to rate varieties. A scale of 1(good) to 5(poor) was used to rate stand survival of varieties after clipping on August 8, 1963.

Leaf spot diseases (both large and small) were noted to be affecting many varieties at the time of the Anthracnose ratings. The infestations of the leaf spot diseases were not heavy enough to be causing much damage. At the end of the growing season it was noted that the stands of many varieties had been drastically reduced.

The Performance of Several Alfalfa Varieties Grown Under Different Climatic Conditions, with Emphasis on the Influence of Fall Cutting

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The experiment was seeded in the spring of 1959 at eight locations, representing a wide range of climatic conditions as indicated by:

Location	Approximate Elevation	Ave. Length of Growing Season	Ave. Annual Precipitation
Morgantown	1200 feet	150 days	42 inches
Wheeling	600	160	42
Reedsville	2000	140	46
Terra Alta	2800	125	50
Wardensville	900	140	32
Martinsburg	500	180	37
Point Pleasant	600	180	40
Union	2000	160	40

Droughts have occurred at Morgantown, Wheeling, Wardensville and Martinsburg during 1962-63 and at Point Pleasant and Union during 1963.

Statistical analyses of alfalfa (fraction) yields indicated that the following were significant:

a) 1960-location, fall management, varieties, varieties x location, varieties x management.

b) 1961-location, varieties, location x varieties, location x management, varieties x management.

c) 1962-location, varieties, location x varieties, management x varieties, location x management x varieties.

d) 1963-location, varieties, location x varieties.

Table 40. Field Cured (15% moisture) in Tons/Acre of Alfalfa

Time of Fall Cutting	Year	Arizona Common	Atlantic	Du Puits	Narragansett	Vernal[1/]	Williamsburg		Average
Early Sept.	1960	4.56	4.94	5.00	5.32	4.93	5.23		5.00
	1961	4.17	3.88	5.49	5.54	4.53	5.11		4.78
	1962	3.81	3.47	3.35	4.00	3.41	4.35		3.73
	1963	2.01	2.43	1.59	2.75	2.21	3.06		2.34
Mid. Sept.	1960	5.23	5.68	5.65	5.66	5.70	5.42		5.56
	1961	4.82	5.28	5.84	5.29	4.98	5.62		5.30
	1962	3.42	4.27	4.22	4.05	4.35	4.11		4.07
	1963	2.43	3.39	3.21	3.50	4.20	3.49		3.38
Early Oct.	1960	4.72	5.35	5.73	5.50	5.94	5.27		5.42
	1961	4.06	4.72	5.44	5.24	4.71	4.90		4.84
	1962	3.30	3.11	4.13	3.71	3.79	3.77		3.63
	1963	2.55	3.45	3.45	3.53	4.40	3.59		3.49
Mid. Oct.	1960	4.29	5.40	5.48	5.46	5.41	5.12		5.19
	1961	3.50	4.64	4.75	4.98	4.51	4.51		4.48
	1962	2.26	2.76	2.89	3.30	2.52	3.02		2.79
	1963	2.33	3.74	2.73	3.95	4.28	3.63		3.45

1/ One replication was severely infected with Pseudoplea in 1960 which resulted in a loss of plants. Yields of Vernal were harvested from the border of the replication containing the diseased plot. If these data are substituted for the diseased plot the average yields were:

1962	3.60 T/A
1963	3.14 T/A

Table 41. Field Cured (15% moisture) in Tons/Acre of Alfalfa

Time of Fall Cutting	Year	Arizona Common	Atlantic	Du Puits	Narragansett	Vernal	Williamsburg		Average
Early Sept.	1960	5.06	5.67	5.78	5.60	5.24	5.59		5.49
	1961	4.06	3.74	4.05	3.98	3.91	3.72		3.91
	1962	4.34	3.55	2.57	4.34	4.73	3.93		3.91
	1963	.60	2.15	.75	1.89	3.63	1.82		1.81
Mid. Sept.	1960	4.56	5.34	5.77	5.12	4.96	5.22		5.16
	1961	3.87	4.80	3.76	3.99	4.11	4.14		4.11
	1962	3.72	4.69	2.84	3.79	5.31	4.31		4.11
	1963	.95	2.11	.86	1.95	2.79	1.74		1.73
Early Oct.	1960	4.76	5.71	5.56	5.58	5.26	5.24		5.35
	1961	3.99	3.84	3.89	4.10	3.78	4.11		3.95
	1962	3.96	4.28	2.97	4.08	5.30	4.81		4.23
	1963	1.42	2.94	1.56	2.70	3.69	2.83		2.53
Mid. Oct.	1960	4.92	5.52	6.08	5.30	5.18	5.48		5.41
	1961	3.31	3.76	3.83	3.76	3.30	3.85		3.63
	1962	3.42	4.07	2.31	4.12	4.60	4.84		3.89
	1963	2.82	3.12	1.01	3.13	3.95	3.60		2.94

Table 42. Field Cured (15% moisture) Yields in Tons/Acre of Alfalfa

Time of Fall Cutting	Year	Arizona Common	Atlantic	Du Puits	Narragansett	Vernal	Williamsburg		Average
Early Sept.	1960	2.10	3.53	4.60	4.47	4.34	3.99		3.84
	1961	2.52	4.38	4.39	5.02	4.46	5.34		4.35
	1962	4.82	5.43	5.67	5.47	5.39	5.55		5.39
	1963	4.56	5.48	5.29	5.35	5.23	5.26		5.20
Mid. Sept.	1960	1.54	3.48	4.34	4.26	4.25	4.24		3.69
	1961	2.95	4.39	4.78	5.26	4.62	4.52		4.42
	1962	5.33	5.74	6.41	6.38	5.98	6.26		6.01
	1963	3.92	4.34	4.63	4.72	4.33	4.82		4.46
Early Oct.	1960	2.72	3.66	4.76	4.14	4.28	3.98		3.93
	1961	3.93	4.34	5.01	4.70	4.63	4.81		4.57
	1962	5.44	5.58	5.89	5.81	5.46	6.30		5.74
	1963	4.00	4.50	4.73	4.53	4.42	4.73		4.48
Mid. Oct.	1960	1.62	2.47	3.00	2.70	2.69	1.17		2.28
	1961	2.62	4.36	5.22	5.05	4.34	4.76		4.39
	1962	4.10	5.97	5.85	6.13	5.70	5.94		5.61
	1963	4.65	5.41	5.33	5.17	5.30	5.61		5.24

WEST VIRGINIA - Terra Alta

Table 43. Field Cured (15% moisture) Yields in Tons/Acre of Alfalfa

Time of Fall Cutting	Year	Arizona Common	Atlantic	Du Puits	Narragansett	Vernal	Williamsburg		Average
Early Sept.	1960	2.84	2.06	3.88	3.03	3.28	4.34		3.24
	1961	2.33	2.86	3.65	4.05	3.30	4.11		3.38
	1962	3.35	1.82	3.95	4.58	3.14	4.48		3.55
	1963	4.01	3.26	3.92	4.77	4.07	4.45		4.08
Mid. Sept.	1960	2.54	1.45	3.47	3.10	3.00	4.52		3.01
	1961	1.89	2.93	3.30	3.33	3.06	4.45		3.16
	1962	3.29	2.36	4.50	3.84	4.53	4.38		3.82
	1963	3.73	3.53	3.85	4.02	4.74	4.59		4.07
Early Oct.	1960	2.09	2.83	3.74	4.08	3.80	2.64		3.20
	1961	1.81	3.13	3.47	4.33	3.47	3.80		3.33
	1962	2.74	3.81	4.76	5.33	4.31	4.52		4.24
	1963	3.06	4.21	3.99	4.72	4.72	4.36		4.17
Mid. Oct.	1960	1.30	3.15	4.00	3.42	4.02	3.14		3.17
	1961	1.88	4.16	3.81	4.16	3.89	4.55		3.74
	1962	2.10	5.14	4.62	4.96	5.51	5.06		4.56
	1963	2.53	4.49	3.95	4.37	4.89	4.13		4.06

WEST VIRGINIA - Wardensville

Table 44. Field Cured (15% moisture) Yields in Tons/Acre of Alfalfa

Time of Fall Cutting	Year	Arizona Common	Atlantic	Du Puits	Narragansett	Vernal	Williamsburg		Average
Early Sept.	1960	3.06	4.22	5.19	4.94	4.55	4.74		4.45
	1961	3.59	3.70	4.65	4.72	4.23	5.06		4.32
	1962	4.66	4.23	3.87	4.70	4.99	4.86		4.55
	1963	1.91	2.96	2.60	2.82	3.15	3.66		2.85
Mid. Sept.	1960	2.78	4.32	5.06	5.26	4.72	5.30		4.57
	1961	5.07	4.51	5.29	4.94	5.13	5.47		5.07
	1962	4.52	4.29	3.78	4.45	4.75	4.95		4.45
	1963	2.21	3.01	2.07	2.62	3.27	3.62		2.80
Early Oct.	1960	3.68	5.37	5.36	5.89	5.58	5.60		5.24
	1961	4.30	4.51	5.19	5.31	5.07	6.06		5.07
	1962	4.31	4.46	3.36	4.28	4.67	4.82		4.31
	1963	2.59	3.01	2.18	3.53	3.82	4.14		3.21
Mid. Oct.	1960	1.93	3.97	4.38	4.64	3.84	3.54		3.71
	1961	3.06	4.73	4.95	5.18	4.52	4.94		4.56
	1962	3.71	4.40	3.44	4.66	4.61	4.68		4.25
	1963	2.73	4.15	2.82	3.67	4.19	4.13		3.61

WEST VIRGINIA - Martinsburg

Table 45. Field Cured (15% moisture) Yields in Tons/Acre of Alfalfa

Time of Fall Cutting	Year	Arizona Common	Atlantic	Du Puits	Narragansett	Vernal	Williamsburg		Average
Early Sept.	1960	5.45	5.88	5.95	6.26	5.95	5.78		5.88
	1961	5.98	6.87	7.65	6.77	6.71	6.98		6.82
	1962	4.36	4.57	5.27	5.77	4.40	5.40		4.96
	1963	3.33	3.82	3.93	5.13	3.95	4.50		4.10
Mid. Sept.	1960	5.79	6.36	6.40	6.48	6.36	6.00		6.23
	1961	5.64	6.32	6.76	6.37	6.23	6.34		6.28
	1962	4.98	5.82	4.79	5.37	5.00	5.36		5.22
	1963	4.16	4.99	4.28	4.50	5.10	5.15		4.69
Early Oct.	1960	5.27	5.51	5.98	5.98	5.91	5.51		5.69
	1961	6.87	7.73	7.76	7.52	7.51	6.81		7.36
	1962	5.15	4.53	5.16	5.04	4.40	5.24		4.92
	1963	2.75	4.65	3.47	3.92	3.33	4.22		3.72
Mid. Oct.	1960	5.32	5.52	5.58	5.78	5.82	5.66		5.61
	1961	6.37	7.61	7.58	7.25	7.20	7.39		7.23
	1962	4.67	5.09	4.68	5.28	4.67	5.11		4.91
	1963	5.05	5.12	4.12	4.89	5.69	5.63		5.08

Table 46. Field Cured (15% moisture) Yields in Tons/Acre of Alfalfa

Time of Fall Cutting	Year	Arizona Common	Atlantic	Du Puits	Narragansett	Vernal	Williamsburg	Buffalo	Average
Early Sept.	1960	4.92	5.26	5.20	5.56	5.18	6.02	4.31	5.21
	1961	5.78	5.84	6.08	5.87	6.16	6.47	4.99	5.88
	1962	5.61	5.80	5.39	6.05	5.83	6.05	5.19	5.70
	1963	3.90	3.77	2.98	3.95	4.45	4.06	3.38	3.79
Mid. Sept.	1960	4.80	4.48	4.90	4.90	4.98	5.47	4.76	4.90
	1961	5.77	5.92	6.24	6.31	6.40	6.61	5.81	6.15
	1962	5.81	6.13	5.11	6.45	6.15	6.33	5.67	5.95
	1963	1.95	1.76	1.07	2.22	2.92	2.73	1.02	1.95
Early Oct.	1960	4.52	4.61	4.52	5.32	4.99	5.18	4.70	4.83
	1961	6.75	6.68	6.71	7.00	6.86	7.30	6.15	6.78
	1962	5.97	5.44	5.35	6.27	6.17	6.34	4.89	5.77
	1963	3.02	3.21	2.54	3.68	3.99	3.58	2.33	3.19
Mid. Oct.	1960	4.01	3.74	3.36	4.42	4.52	4.76	3.88	4.10
	1961	6.50	6.19	6.10	6.82	6.91	7.19	6.31	6.57
	1962	5.47	4.86	4.90	5.91	6.12	6.38	4.71	5.48
	1963	3.55	3.28	2.83	4.01	4.35	4.56	3.08	3.67

Table 47. Field Cured (15% moisture) Yields in Tons/Acre of Alfalfa

Time of Fall Cutting	Year	Arizona Common	Atlantic	Du Puits	Narragansett	Vernal	Williamsburg		Average
Early Sept.	1960	3.61	4.60	4.53	4.70	4.54	4.45		4.41
	1961	5.02	5.55	5.83	5.87	5.95	5.72		5.65
	1962	4.89	5.56	5.80	5.69	5.80	6.00		5.62
	1963	2.53	3.40	3.38	3.36	3.95	3.49		3.35
Mid. Sept.	1960	3.40	4.68	4.42	4.61	4.63	4.36		4.35
	1961	5.21	5.25	6.06	5.99	5.57	5.87		5.66
	1962	5.13	4.18	6.67	6.30	6.52	5.99		5.80
	1963	1.27	1.67	2.29	3.35	3.60	3.02		2.53
Early Oct.	1960	1.94	3.96	4.17	3.83	4.06	3.74		3.62
	1961	2.90	5.03	4.47	4.86	5.21	4.60		4.51
	1962	3.75	6.10	6.04	5.94	6.13	5.84		5.63
	1963	1.06	2.70	1.85	2.98	3.45	2.40		2.40
Mid. Oct.	1960	1.66	4.60	4.66	4.58	4.58	4.20		4.05
	1961	2.58	6.14	5.95	6.26	6.09	6.28		5.55
	1962	4.13	5.97	5.81	6.21	6.07	5.83		5.67
	1963	1.46	3.10	1.69	3.43	3.95	2.35		2.66

1963 Eastern Alfalfa Nursery Report
University of Maryland -
E. H. Beyer

Data were recorded for the third year on two NE-28 alfalfa trials. One trial had three harvests made each year at 45 day intervals (moderate cutting treatment), and the other trial had four harvests made each year at 35 day intervals (severe cutting treatment).

The cutting treatments, based upon calendar dates, had little affect on stand or yield. In 1961, there were four significant ranges at the .05 level of significance under the moderate treatment, whereas under the severe cutting treatment there were only two significant ranges in the same year. Five entries: Du Puits, High Seed Narragansett, Wilt Resistant Narragansett, N. Y. Syn A, and Saranac, were not significantly different from each other under the 1961 moderate cutting. However, two vigorous growing varieties, Du Puits and Saranac, were significantly different at the .05 level from the other seven entries under the 1961 severe cutting treatment. This was not the trend in 1962 between the two cutting treatments. This may be due to the fact that 1962 was a dry year. The five month average rainfall for April through August was only 2.22 in 1962 while in the same period in 1961 it was 3.89. The 60 year average is 3.92 for this period. (The 1963 average was 3.59.) The analysis of the 1963 data is not yet available.

TABLE 48. ALFALFA UNIFORM TRIAL (NE-28)

Date of Seeding: Sept. 2, 1960
Design: R. C. B. with 6 reps.

Type of Planting: Broadcast plot 5 x 20 ft.
Management: Two cutting treatments.

Entry	Total Yield - Tons per acre at 12% moisture							
	3 Cuttings at 45 day intervals				4 cuttings at 35 day intervals			
	1961	1962	1963	Ave.	1961	1962	1963*	Ave.
Atlantic	4.85 d	4.29 ab	5.29	4.81	5.38 b	4.62 a	4.70	4.89
Cayuga	4.81 d	4.16 ab	4.98	4.65	5.15 b	4.69 a	4.62	4.82
Du Puits	5.19 abc	4.18 ab	4.84	4.73	5.89 a	4.68 a	4.54	5.03
High Seed Narragansett	5.22 ab	4.11 ab	5.00	4.77	5.36 b	4.30 ab	4.50	4.72
Narragansett	5.05 bcd	4.09 ab	4.82	4.65	5.43 b	4.49 a	4.60	4.84
Wilt Res. Narragansett	5.17 abc	4.00 ab	4.76	4.64	5.17 b	4.39 ab	4.49	4.68
N. Y. Syn. A.	5.14 abc	4.21 ab	4.91	4.75	5.31 b	4.43 a	4.56	4.76
Saranac	5.39 a	4.37 a	5.30	5.01	5.93 a	4.65 a	4.77	5.11
Vernal	4.92 cd	3.87 b	4.49	4.42	5.32 b	3.96 b	3.97	4.41
s	.22	.32			.20	.36		
C.V. (%)	6.2	8.0			5.4	8.4		

Means with a letter in common are not significantly different at the .05 level.
* Three cuttings made in 1963.

Table 49. NE-28 Alfalfa Varieties and Synthetics Test 1960
Location: College Park, Md. 1963 Data

Mgt. 4 cut, severe

Random Number	Entry	N.Y. No.	Total Yield - T/A (12%M) 5/20	6/24	9/2	Total Season	% DM 5/20
1	N.Y. Syn. A	60-18	1.79	1.54	1.23	4.56	24.8
2	N.Y. Syn. B	60-19	1.76	1.57	1.30	4.62	23.9
3	H.S. Narrag.	60-20	1.74	1.52	1.24	4.50	24.4
4	W.R. Narrag.	60-21	1.78	1.57	1.13	4.49	24.1
5	W.R. Flemish	60-22	1.83	1.69	1.25	4.77	24.0
6	Atlantic	60-27	1.87	1.61	1.23	4.70	24.1
7	Narrag.	60-14	1.82	1.51	1.26	4.60	23.9
8	Vernal	60-26	1.47	1.37	1.13	3.97	24.9
9	DuPuits	60-17	1.75	1.62	1.17	4.54	24.7
	Average		1.76	1.56	1.22	4.53	24.4
	F - Varieties		.79 —	1.88 —	.75 —	1.03 —	.67 —
	L.S.D. (P=.05)		.37	.18	.19	.63	1.3
	C.V. (%)		18.4	10.1	13.3	12.2	4.7

Mgt. 3 cut, moderate

Random Number	Entry	N.Y. No.	6/6	7/18	9/2	Total Season	% DM 6/6
1	N.Y. Syn. A	60-18	2.09	1.88	.94	4.91	25.1
2	N.Y. Syn. B	60-19	1.99	1.98	1.01	4.98	25.7
3	H.S. Narrag.	60-20	2.27	1.85	.88	5.00	25.1
4	W.R. Narrag.	60-21	2.15	1.79	.82	4.76	25.4
5	W.R. Flemish	60-22	2.24	2.05	1.01	5.30	25.2
6	Atlantic	60-27	2.24	2.00	1.05	5.29	25.5
7	Narrag.	60-14	2.11	1.86	.85	4.82	25.2
8	Vernal	60-26	1.91	1.73	.85	4.49	25.4
9	DuPuits	60-17	2.05	1.89	.89	4.84	26.1
	Average		2.12	1.89	.92	4.93	25.4
	F - Varieties		1.26 —	3.66 **	3.09 **	2.15 —	.43 —
	L.S.D. (P=.05)		.31	.15	.13	.49	1.4
	C.V. (%)		12.7	7.1	12.6	8.7	4.7

Table 50. NE-28 Alfalfa Varieties and Synthetics - 1958
Location: Ithaca (McGowan) 1963 Data

Random Number	Entry	Total Yield - T/A - 12% Moisture 1st cut 6/18	2nd cut 8/1	3rd cut 8/30	Season Total	% Alfalfa 6/18
36	Indiana Syn. F	-	-	-	-	-
37	New York A	1.57	1.17	.27	3.01	76
38	New York B (CAYUGA)	1.71	1.03	.27	3.00	78
39	New York C	-	-	-	-	-
40	Syn. A-242	-	-	-	-	-
41	Buffalo	1.26	.53	.10	1.88	24
42	Williamsburg	.92	.35	.05	1.33	10
43	Lahontin	1.41	.90	.28	2.59	64
44	Ranger	1.43	.82	.22	2.47	42
13	Atlantic	1.34	.68	.13	2.15	41
14	DuPuits	.60	.03	.00	.63	0
15	Narragansett	.96	.25	.03	1.25	12
16	Vernal	1.64	1.00	.23	2.87	60
49	Rambler	-	-	-	-	-
50	NK-501	.66	.10	.00	.76	0
51	Alfa	.48	.03	.00	.52	0
52	Moapa	1.06	.25	.04	1.36	0
	Average	1.16	.55	.13	1.83	
	F - Varieties	12.61**	21.62**	10.16**	19.69**	
	L.S.D. (P=.05)	.32	.25	.10	.39	
	C.V. %	22.2	35.6	63.6	25.2	

Notes: (1) Differences in wilt tolerance show up in yield and composition.

(2) Second-cut hard hit with leaf hoppers.

(3) Lahontin looked most vigorous at end of 5th year. Some stand loss during year on resistant entries.

Table 51. NE-28 Alfalfa Varieties and Synthetics Test-1960
Location: Ithaca, N.Y. - Pulleyn 1963 Data

Random Number	Mgt. : 3 cut, severe Entry	N.Y. No.	Total Yield - T/A - 12% Moisture 1st cut 5/31	2nd cut 7/9	3rd cut 9/6	Season Total	Ave. % D.M. 5/31
1	N.Y. Syn. A	60-18	1.57	1.34	1.07	3.98	15.6
2	N.Y. Syn. B	60-19	1.56	1.33	1.02	3.91	16.5
3	H.S. Narrag.	60-20	1.63	1.37	1.13	4.13	15.7
4	W.R. Narrag.	60-21	1.64	1.39	1.08	4.11	16.3
5	W.R. Flemish	60-22	1.44	1.22	1.04	3.70	16.9
6	Atalntic	60-27	1.55	1.23	1.04	3.82	15.9
7	Narrag.	60-14	1.61	1.34	1.06	4.01	15.9
8	Vernal	60-26	1.58	1.26	1.03	3.87	16.3
9	DuPuits	60-17	1.28	1.13	.93	3.33	16.3
	Ave.		1.54	1.29	1.04	3.87	16.1
	F-Varieties		6.65**	5.82**	2.54 *	12.34**	1.86 -
	L.S.D. (P = .05)		.12	.10	.10	.20	.9
	C.V. (%)		7.0	6.8	8.1	4.4	4.7

	Mgt. : 3 cut, normal	1st cut 6/7	2nd cut 8/1	3rd cut 9/17	Season Total	Ave. % D.M. 6/7
1	N.Y. Syn. A	2.00	1.50	.72	4.22	17.4
2	N.Y. Syn. B	2.32	1.71	.86	4.89	17.8
3	H.S. Narrag.	2.23	1.69	.87	4.79	17.0
4	W.R. Narrag.	2.25	1.56	.76	4.57	17.7
5	W.R. Flemish	2.08	1.61	.76	4.45	17.7
6	Atlantic	2.01	1.57	.73	4.31	17.1
7	Narrag.	2.28	1.67	.73	4.68	18.2
8	Vernal	2.13	1.57	.74	4.44	17.5
9	DuPuits	2.00	1.43	.61	4.04	18.9
	Ave.	2.14	1.59	.75	4.49	17.7
	F-Varieties	2.08 -	2.81 *	2.60 *	4.60**	1.29 -
	L.S.D. (P = .05)	.25	.15	.13	.36	1.6
	C.V. (%)	10.1	8.2	15.4	6.9	7.9

Table 52. NE-28 Alfalfa Varieties and Synthetics Test-1960
Location: Westtown, N.Y. (Orange Co.) 1963 Data

Mgt.: 3 cut, normal

Random Number	Entry	1st cut 6/11	2nd cut 7/25	3rd cut 9/5	Season Total	% Stand Alfalfa 6/11	% Stand Alfalfa 9/5
1	N.Y. Syn. A	2.14	1.29	.87	4.31	78	63
2	N.Y. Syn. B	2.13	1.54	1.01	4.68	72	73
3	H.S. Narrag.	2.20	1.47	.85	4.52	76	55
4	W.R. Narrag.	2.38	1.47	.95	4.80	75	63
5	W.R. Flemish	1.72	1.23	.77	3.72	65	46
6	Atlantic	1.98	1.36	.78	4.11	75	50
7	Narrag.	1.89	1.40	.70	4.00	74	47
8	Vernal	2.06	1.42	.90	4.38	74	62
9	DuPuits	1.11	.38	.13	1.61	11	2
	Aver.	1.96	1.29	.77	4.01		
	F-Varieties	10.56**	13.21**	17.2**	19.05**		
	L.S.D. (P=.05)	.31	.27	.18	.62		
	C.V. (%)	14.2	18.5	19.9	13.4		

Notes: Wilt was evident at this location in the second harvest year and DuPuits was nearly gone completely this season. Yields reflect superiority of Saranac to DuPuits but not as good as hardy wilt resistant types.

Table 53. NE-28 Alfalfa Variety and Synthetics Trial - 1960
Location: Smyrna, N.Y. 1963 Data

One Management Only: 2 cuts/season			Total Yield - Tons/Acre (12% M)			Composition	
Random Number	Entry	N.Y. No.	1st cut 6/25	2nd cut 8/16	Season Total	% Legume 6/25	% D,M. 6/25
1	N.Y. Syn. A	60-18	2.93	1.79	4.72	87	22.2
2	N.Y. Syn. B	60-19	2.68	1.78	4.46	81	21.3
3	H.S. Narrag.	60-20	2.99	1.98	4.97	90	21.2
4	W.R. Narrag.	60-21	2.92	1.94	4.86	91	21.5
5	W.R. Flemish	60-22	2.94	2.05	4.99	91	21.2
6	Atlantic	60-27	2.81	1.87	4.69	86	22.2
7	Narrag.	60-14	2.99	1.95	4.93	87	22.6
8	Vernal	60-26	2.77	1.79	4.56	85	22.3
9	DuPuits	60-17	2.80	2.01	4.81	91	21.5
	Ave.		2.87	1.91	4.78		21.8
	F-Varieties		1.59 —	4.22 **	2.96 **		1.75 —
	L.S.D. (P=.05)		.24	.14	.30		1.1
	C.V. (%)		10.4	8.9	7.8		6.4

Note: This trial has 12 replications. Note how closely the first harvest composition estimates reflect the season yields.

Table 54. 1960 NE-28 Alfalfa Variety and Synthetics Test
Location: University Park, Pa. 1963 Data

Mgt. 3 cut - Severe

Random Number	Entry	N.Y. No.	Total Yield - Tons/Acre (12%M) 6/7	7/25	9/10	Season Total	% Stand
1	N.Y. Syn. A	60-18	1.99	1.46	.88	4.32	86
2	N.Y. Syn. B	60-19	1.90	1.48	.87	4.25	94
3	H.S. Narrag.	60-20	2.17	1.43	.85	4.45	86
4	W.R. Narrag.	60-21	2.19	1.49	.92	4.60	100
5	W.R. Flemish	60-22	1.93	1.53	.90	4.35	83
6	Atlantic	60-27	2.08	1.51	.89	4.48	93
7	Narrag.	60-14	2.04	1.57	.88	4.49	97
8	Vernal	60-26	1.96	1.39	.81	4.16	95
9	DuPuits	60-17	1.90	1.51	.84	4.26	53
	Ave.		2.02	1.49	.87	4.38	
	F - Varieties		2.51*	1.41 -	1.80 -	1.91 -	
	L.S.D. (P=.05)		.20	.23	.10	.42	
	C.V. (%)		8.6	13.5	10.01	8.3	

Mgt. 3 cut - Moderate

		6/7	7/25	9/10	Season Total	
1	N.Y. Syn. A	2.01	1.40	.84	4.25	100
2	N.Y. Syn. B	1.84	1.53	.88	4.26	91
3	H.S. Narrag.	2.09	1.61	1.00	4.69	98
4	W.R. Narrag.	2.09	1.49	.89	4.46	98
5	W.R. Flemish	2.01	1.65	.90	4.57	93
6	Atlantic	2.03	1.55	.90	4.48	95
7	Narrag.	1.90	1.50	.83	4.23	97
8	Vernal	2.06	1.54	.89	4.48	97
9	DuPuits	1.83	1.49	.82	4.14	95
	Ave.	1.98	1.53	.88	4.40	
	F - Varieties	1.84 -	1.18 -	3.33**	1.74 -	
	L.S.D. (P=.05)	.25	.19	.08	.39	
	C.V. (%)	10.9	10.7	8.0	7.8	

Notes: (1) Both mgts. same in 1963. Stands have been variable since establishment at this site and cutting pressure relatively light due to drouths.

Table 55. NE-28 Alfalfa Variety and Synthetics Trial - 1960
Location: Morgantown, West Va.
1963 Data

Mgt.: Moderate

Random Number	Entry	N.Y. No.	Total Yield - Tons/Acre (12%M) 1st cut 6/1	2nd cut 7/11	3rd cut 8/27	Season Total
1	N.Y. Syn. A	60-18	2.02	1.24	.34	3.60
2	N.Y. Syn. B	60-19	2.06	1.22	.38	3.66
3	H.S. Narrag.	60-20	2.43	1.30	.40	4.15
4	W.R. Narrag.	60-21	2.13	1.21	.36	3.71
5	W.R. Flemish	60-22	2.15	1.35	.40	3.90
6	Atlantic	60-27	1.88	1.03	.35	3.26
7	Narrag.	60-14	2.28	1.29	.42	3.98
8	Vernal	60-26	2.29	1.09	.35	3.72
9	DuPuits	60-17	1.84	1.04	.34	3.22
	Average		2.13	1.20	.37	3.70
	F - Varieties		3.85 **	2.31 *	1.91 -	3.28 **
	L.S.D. (P=.05)		.28	.22	.09	.46
	C.V. (%)		11.6	15.8	20.4	11.3

ALFALFA VARIETY YIELD TRIALS - 1964

ALABAMA - Belle Mina

Table 56. Dry Forage Yield of Alfalfa Varieties at Tennessee Valley Substation, 1964.

Entry	Stand % April 2	Pounds of Oven Dry Forage per Acre				Average	
		April 29	June 1	July 2	TOTAL	2-Year	3-Year
1. Vernal	95	2559	1531	482	4572 a*	6336	4982
2. Stoneville P.C. 1	92	2248	1467	490	4205 ab	5448	4378
3. Buffalo	90	1956	1362	416	3734 abc	5208	4274
4. Williamsburg	88	1893	1328	486	3707 abc	5233	4263
5. Pfister FD-100	66	1831	1065	439	3336 bcd	4839	4113
6. Socheville	59	1467	1118	473	3058 cde	4790	4258
7. Alfa (Scandia)	56	1448	1022	350	2820 cde	4740	4199
8. DuPuits	42	1244	882	396	2522 de	4341	3878
9. Tourneur 501	36	1226	808	299	2333 e	4029	3563

* Least significant range at 5%.

Date Planted: September 13, 1961

Soil: Decatur Clay

Fertilizer: 500 lb/acre 0-14-14 in spring.

Table 57. Dry forage yield and stands of alfalfa varieties at Plant Breeding Unit, Tallassee, Alabama, 1964.

Entry	Pounds per acre oven dry forage			Percent stand
	April 16	May 19	Total	Oct. 13, 1964
1. DuPuits	3790	2758	6548	14
2. Buffalo	4024	2285	6309	20
3. Atlantic	4138	1936	6074	5
4. African	3548	2443	5991	62
5. Cherokee	3776	2197	5973	64
6. Stoneville P.C. 1	3439	2508	5847	55
7. Williamsburg	3508	2182	5690	30
8. Unita	3675	1942	5617	9
9. Zia	3938	1645	5583	6
10. Culver	3712	1793	5505	14
11. Cayuga	3617	1809	5426	22
12. Cody	3032	1653	4685	12

Date Planted: Sept. 20, 1963

Soil: Cahaba fine sandy loam

Fertilizer: 600 lb/acre 4-12-12 and borax

ALFALFA VARIETY YIELD TRIALS - 1964

ARKANSAS

An extremely dry winter followed one of the driest seasons on record in all areas of Arkansas. The drought conditions continued through the spring of 1964 and into the summer in the northwest area of the state until August, when a series of general rains brought some temporary relief. In most of the other areas in Arkansas, rainfall was adequate for normal plant growth in March and April and again in August, but extremely dry conditions in May, June, and July greatly reduced plant growth during this period.

Temperatures averaged 10°F lower in December and from 3 to 5°F lower in February than normal in all areas of the state. Except for these two cold periods, however, winter temperatures were near normal over the entire state. Warmer than average temperatures from April to August added to the seriousness of the drought.

Very little disease was observed on alfalfa in Arkansas in 1964, and no serious damage from disease was reported anywhere in the state. The almost complete absence of disease on alfalfa in 1964 was attributed to the very dry weather which prevailed throughout most of the summer.

The spotted alfalfa aphid was present in all areas of the state in 1964, with rather heavy concentrations of the insect reported in some areas. It was difficult to assess the actual damage caused by the spotted alfalfa aphid, however, because of the unfavorable environment for plant growth that was created by the prolonged drought. Blister beetles and leafhoppers were reported as causing some damage to alfalfa in several rather localized areas this past year. The alfalfa weevil, reported in only four eastern Arkansas counties in 1963, spread about 75 to 100 miles westward across the state in 1964. The only damage attributed to this insect in 1964 was to the first cutting in the northeastern part of the state, but there is little question that it poses a serious threat to the production of alfalfa in Arkansas in the future.

Alfalfa varieties recommended in Arkansas in 1964 are as follows:

Buffalo, Cherokee, Cody, and Ranger are recommended for the entire state.

Vernal is recommended for the upland soils of northern and western Arkansas.

Lahontan is recommended for heavy clay Delta soils.

Table 58. Main Alfalfa Variety Yield Trial - 1964

Location: Block 37, Agronomy Farm, Fayetteville, Arkansas.
Design: Randomized block; 4 replications.
Established: September 20, 1956 on Waynesboro silt loam soil.
Soil Treatment: 40-80-80 fertilizer and 2 tons of lime per acre at time of seeding. Topdressed with 25-50-100 fertilizer per acre on Feb. 28, 1957, 0-30-60 fertilizer per acre on March 21, 1958, 0-60-30 fertilizer per acre on Feb. 27, 1959, 0-100-150 fertilizer and 20 lbs. of boron per acre on March 23, 1960, 0-60-180 fertilizer and 20 lbs. of boron per acre on Feb. 17, 1961, 0-100-150 fertilizer and 20 lbs. of boron per acre on Jan. 30, 1962, 0-100-150 fertilizer and 20 lbs. of boron per acre on Feb. 6, 1963, and 0-100-150 fertilizer and 20 lbs. of boron per acre on Jan. 11, 1964.
Plot Size: 5 feet by 20 feet.
Seeding Rate: 20 pounds of live, pure seed per acre broadcast.
Harvested: 5 times (May 12, June 16, July 21, September 8, and October 27, 1964).

Variety	Hay yield in tons per acre (12% moisture)							Stand 1/	Percent leaves 2/		Spring vigor 3/	Recovery after cutting 4/
	1st cut	2nd cut	3rd cut	4th cut	5th cut	Total 1964	8-yr.ave. 57-64		1964	8-yr.ave. 57-64		
DuPuits F.C. 24,697	0.68	0.56	0.20	1.13	0.21	2.78	3.57	39	58.8	52.7	4.5	3.8
Canadian Sc. Ms. 531	0.60	0.36	0.14	1.16	0.06	2.32	2.50	26	69.1	57.8	7.8	7.3
Lahontan F.C. 33,087	1.01	0.78	0.41	1.24	0.41	3.85	3.75	78	60.3	52.0	4.5	4.0
Indiana Syn. "F" F.C. 33,188	1.09	0.66	0.20	1.17	0.21	3.33	3.79	63	66.4	56.4	6.0	6.0
New Mexico 11-1 F.C. 33,209	0.89	0.60	0.25	1.16	0.32	3.22	3.95	61	59.1	50.7	5.0	4.8
Buffalo F.C. 32,984	0.87	0.58	0.27	1.23	0.32	3.27	4.03	64	60.9	52.5	5.0	5.0
Socheville P.I. 224,623	0.70	0.53	0.22	1.01	0.23	2.69	3.97	39	58.9	52.1	4.5	4.0
N.C. Syn. B(51)7 F.C. 32,644	0.98	0.64	0.24	1.10	0.32	3.28	4.10	45	61.0	52.0	4.6	4.6
Williamsburg F.C. 33,204	0.74	0.57	0.31	1.29	0.32	3.23	4.03	45	60.0	50.9	5.1	4.8
Caliverde F.C. 32,594	0.65	0.47	0.20	0.96	0.22	2.50	3.30	42	58.6	51.7	4.9	4.4
Vernal F.C. 31,983	1.12	0.74	0.28	1.27	0.26	3.67	4.27	64	60.5	54.5	5.9	5.8
Atlantic F.C. 33,492	0.73	0.54	0.23	1.07	0.19	2.76	3.64	41	59.5	52.4	5.4	5.1
L.S.D. at .05 level	0.17	0.12	0.11	N.S.	0.07	0.51		17	5.6			
L.S.D. at .01 level	0.23	0.16	0.15	N.S.	0.09	0.69		22	7.5			
C.V.	14.4%	13.8%	31.8%	15.2%	18.9%	11.5%		22.8%	6.3%			

1/ Stand counts were made by the point quadrat method on May 26, 1964. One hundred points were counted per 5 ft. by 20 ft. plot 14 days after first cutting was made. Stand based on number of hits per 100 points.
2/ Percent leaves based on samples of 40 stems per plot. Samples harvested on June 15, 1964.
3/ Spring vigor scores based on scale of 1 to 9; 1 = high vigor, 9 = low vigor. Scored on April 8, 1964.
4/ Recovery after cutting scores based on scale of 1 to 9; 1 = rapid recovery, 9 = slow recovery. Scored on May 26, 1964.

Table 59. Alfalfa "Synthetic" Variety Yield Trial - 1964

Location: Block 37, Agronomy Farm, Fayetteville, Arkansas.
Design: Randomized block; 4 replications.
Established: September 20, 1956 on Waynesboro silt loam soil.
Soil Treatment: 40-80-80 fertilizer and 2 tons of lime per acre at time of seeding. Topdressed with 25-50-100 fertilizer per acre on Feb. 28, 1957, 0-30-60 fertilizer per acre on March 28, 1958, 0-60-30 fertilizer per acre on Feb. 27, 1959, 0-100-150 fertilizer and 20 lbs. of boron per acre on March 23, 1960, 0-60-180 fertilizer and 20 lbs. of boron per acre on Feb. 17, 1961, 0-100-150 fertilizer and 20 lbs. of boron per acre on Jan. 30, 1962, 0-100-150 fertilizer and 20 lbs. of boron per acre on Feb. 6, 1963, and 0-100-150 fertilizer and 20 lbs. of boron per acre on Jan. 11, 1964.
Plot Size: 5 feet by 20 feet.
Seeding Rate: 20 pounds of live, pure seed per acre broadcast.
Harvested: 5 times (May 12, June 16, July 21, September 8, and October 27, 1964).

Variety	Hay yield in tons per acre (12% moisture)							Stand 1/	Percent leaves 2/		Spring vigor 3/	Recovery after cutting 4/
	1st cut	2nd cut	3rd cut	4th cut	5th cut	Total 1964	8-yr.ave. 57-64		1964	8-yr.ave. 57-64		
A-225 Syn. 4	1.09	0.65	0.34	1.33	0.30	3.71	4.08	56	66.5	54.1	5.5	5.9
Indiana Syn. "F" F.C. 33,188	1.02	0.69	0.32	1.26	0.27	3.56	4.27	53	63.4	54.5	6.0	6.0
Vernal F.C. 31,983	1.12	0.71	0.31	1.30	0.23	3.67	4.20	70	63.0	53.8	6.0	5.5
A-253 Syn. 1	1.08	0.67	0.27	1.15	0.25	3.42	4.14	61	65.2	55.4	6.0	5.9
Buffalo F.C. 32,984	0.83	0.60	0.33	1.25	0.27	3.28	4.17	51	64.5	52.3	5.0	5.0
A-224 Syn. 3	0.99	0.57	0.22	1.19	0.17	3.14	3.70	55	70.1	56.4	6.6	6.5
A-248 (Grandfield)	0.99	0.63	0.25	1.08	0.30	3.25	4.18	62	61.3	52.7	5.1	5.0
A-204 Syn. 4	1.00	0.60	0.22	1.13	0.21	3.16	4.09	60	67.2	56.1	5.9	6.3
A-223 F.C. 24,993	1.22	0.66	0.28	1.28	0.27	3.71	4.14	54	65.8	54.7	5.6	6.0
Ranger	0.95	0.66	0.35	1.06	0.30	3.32	3.93	58	65.9	54.5	5.5	5.9
L.S.D. at .05 level	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.		N.S.	4.5			
L.S.D. at .01 level	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.		N.S.	N.S.			
C.V.	15.1%	13.2%	30.4%	15.3%	23.0%	10.7%		18.4%	4.7%			

1/ Stand counts were made by the point quadrat method on May 26, 1964. One hundred points were counted per 5 ft. by 20 ft. plot 14 days after first cutting was made. Stand based on number of hits per 100 points.
2/ Percent leaves based on samples of 40 stems per plot. Samples harvested on June 15, 1964.
3/ Spring vigor scores based on scale of 1 to 9; 1 = high vigor, 9 = low vigor. Scored on April 8, 1964.
4/ Recovery after cutting scores based on scale of 1 to 9; 1 = rapid recovery, 9 = slow recovery. Scored on May 26, 1964.

Table 60. Lower Mississippi Valley Uniform Alfalfa Variety Yield Trial #6 - 1964

Location: Northeast Branch Experiment Station, Keiser, Arkansas.
Design: Randomized block; 4 replications.
Established: September 16, 1958 on Sharkey clay loam (medium) soil.
Soil Treatment: 30-60-60 fertilizer per acre at time of seeding. Topdressed with 0-50-100 fertilizer per acre on February 17, 1962 and 0-100-150 fertilizer per acre on February 8, 1964.
Plot Size: 5 feet by 20 feet.
Seeding Rate: 20 pounds of live, pure seed per acre broadcast.
Harvested: 5 times (May 5, June 11, July 13, August 19, and September 24, 1964).

Variety	Hay yield in tons per acre (12% moisture)							Stand 1/	Spring vigor 2/
	1st cut	2nd cut	3rd cut	4th cut	5th cut	Total 1964	6-yr.ave. 59-64		
Stoneville P.C. #1	1.35	1.02	0.32	0.87	0.72	4.28	4.66	60	5.5
Stoneville Buffalo Sel.	1.65	1.02	0.26	0.99	0.66	4.58	4.66	70	5.0
Buffalo	1.59	0.89	0.36	0.87	0.68	4.39	4.82	62	5.0
N.C. Syn. AB(57)	1.29	0.95	0.34	0.97	0.74	4.29	4.65	41	5.8
N.C. Syn. A(51)5	1.51	0.96	0.41	0.80	0.73	4.41	5.05	50	4.3
N.C. Syn. D(51)12	1.40	0.85	0.28	0.82	0.67	4.02	4.40	52	5.5
N.C. Syn B(51)7	1.72	0.95	0.32	0.89	0.61	4.49	4.91	61	4.3
Ranger	1.58	1.15	0.28	0.75	0.75	4.51	4.82	60	5.3
Kansas Syn. B_1(Cody)	1.51	0.85	0.39	1.02	0.66	4.43	4.61	59	4.5
Lahontan	1.61	1.40	0.41	0.81	0.73	4.96	4.67	74	3.5
Rhizoma	1.30	0.85	0.34	0.92	0.65	4.06	4.31	56	7.0
Vernal	1.76	1.07	0.29	0.81	0.84	4.77	4.74	50	6.0
L.S.D. at .05 level	0.25	N.S.	N.S.	N.S.	N.S.	N.S.		17	
L.S.D. at .01 level	0.34	N.S.	N.S.	N.S.	N.S.	N.S.		N.S.	
C.V.	11.4%	22.0%	39.1%	18.1%	17.5%	11.8%		19.9%	

1/ Stand counts were made by the point quadrat method on May 16, 1964. One hundred points were counted per 5 ft. by 20 ft. plot 11 days after first cutting was made. Stand based on number of hits per 100 points.
2/ Spring vigor scores based on scale of 1 to 9; 1 = high vigor, 9 = low vigor. Scored on April 3, 1964.

Table 61. Lower Mississippi Valley Uniform Alfalfa Variety Yield Trial #10 - 1964

Location: Northeast Branch Experiment Station, Keiser, Arkansas.
Design: Randomized block; 4 replications.
Established: March 19, 1962 on Sharkey clay - loamy sand, overwash, undulating (mixed) soil.
Soil Treatment: None at time of seeding. Topdressed with 0-100-150 fertilizer per acre on February 8, 1964.
Plot Size: 5 feet by 20 feet.
Seeding Rate: 20 pounds of live, pure seed per acre broadcast.
Harvested: 5 times (May 5, June 11, July 13, August 19, and September 21, 1964).

Variety	Hay yield in tons per acre (12% moisture)							Stand 1/	Spring vigor 2/
	1st cut	2nd cut	3rd cut	4th cut	5th cut	Total 1964	3-yr.ave. 62-64		
Uinta	1.97	1.11	0.47	1.03	0.74	5.32	4.58	52	5.8
Lahontan	1.62	1.35	0.67	1.25	0.79	5.68	4.43	70	5.0
Stoneville P.C. #1	1.83	1.17	0.46	1.42	0.99	5.87	4.65	63	5.5
Rhizoma	2.28	1.36	0.50	1.19	0.77	6.20	4.72	64	6.3
Culver	2.43	1.23	0.50	1.19	0.83	6.18	5.01	66	5.8
Cherokee	2.19	1.34	0.68	1.44	0.80	6.45	5.03	72	5.0
Arkansas Syn. P-2	2.25	1.42	0.62	1.52	0.69	6.50	5.09	74	5.8
Cayuga	2.34	1.38	0.46	1.16	0.83	6.17	4.95	64	5.5
Buffalo	2.13	1.50	0.70	1.40	0.90	6.63	4.92	79	5.0
Vernal	2.33	1.38	0.55	1.23	0.81	6.30	5.11	61	5.3
Cody	1.96	1.40	0.65	1.41	0.88	6.30	4.89	77	5.3
Ranger	2.05	1.12	0.48	1.21	0.91	5.77	4.78	73	5.3
L.S.D. at .05 level	0.44	0.21	N.S.	N.S.	0.12	N.S.		N.S.	
L.S.D. at .01 level	N.S.	0.28	N.S.	N.S.	0.17	N.S.		N.S.	
C.V.	14.4%	11.0%	32.4%	16.6%	10.4%	10.4%		18.6%	

1/ Stand counts were made by the point quadrat method on June 25, 1964. One hundred points were counted per 5 ft. by 20 ft. plot 14 days after second cutting was made. Stand based on number of hits per 100 points.
2/ Spring vigor scores based on scale of 1 to 9; 1 = high vigor, 9 = low vigor. Scored on April 3, 1964.

The biggest problem with alfalfa is poor persistence. The reasons for the poor persistence are numerous. The warm humid climate in summer does not seem to be favorable for alfalfa plants to store carbohydrate reserves in the roots. The non-hardy alfalfa varieties planted in September are ready for first cutting of hay in January of a mild winter. The more usual occurance is for one or more severe freezes to kill a large portion of top growth so the first hay cutting is not ready until March or April. The growth of non-hardy alfalfa is rapid during the warm season so that the early bloom stage is reached 26 to 32 days following a hay harvest. The time interval between cuttings is relatively short and perhaps limits root reserve storage. Letting the alfalfa remain until later hay stages does not necessarily increase root reserves as insects and leaf diseases usually build up rapidly after early bloom and quickly defoliate much of the plant. The plants grow weaker and weaker during the summer months as carbohydrate reserves in roots gradually diminish. Root and crown rot diseases are favored during the rainy season from June to middle of September. During extremely heavy rainfall, such as occurred during August and September, 1964, the roots of alfalfa plants may die up to within 6 to 8 inches of soil surface even on normally well-drained soils. Even if soil-borne diseases do not kill the plant at this stage it must make both new root and topgrowth with limited root reserves. If much topgrowth is present, it is necessary to cut it off to prevent dessication and death of the root-pruned plant. Fall growth of alfalfa is generally slow due to weakened condition of plants.

Progress is being made on developing an alfalfa which will persist two or more harvest years. Dr. E. S. Horner is using mass selection in

developing persistence and has completed some five generations of selection. Table 1 compares the yield and persistence of 14 varieties of alfalfa with Dr. Horner's experimental alfalfa in the second harvest year. It is quite rare that varieties in a variety test other than the Florida experimental, have persisted satisfactorily to make feasible the taking of second season hay yields. The stands of all varieties were quite uniform in the spring of 1963 prior to first cutting of hay and the mean number of plants per 9 feet of row was 62 plants. Only Florida Experimental and Stoneville P. C. 1 had enough plants surviving in January 5, 1965 to make a third year harvest of hay feasible. The good persistence of Stoneville P. C. 1 in this planting was not suspected, as this variety in other plantings has shown poor persisting ability in Florida.

Table 62. The hay yield and plant persistence of alfalfa varieties seeded September, 1962 at Gainesville, Florida during the second (1964) harvest season.

Variety	Pounds per acre dry matter harvested				Season * total **	Plants on 9 feet of row*	
	March 27	May 4	June 10	July 9		11-26-63	1-5-65
	Average of 6 replications						
Fla. Experimental 62	3030	1940	2890	1940	9800 a	30 a	19 a
Stoneville P. C. 1	1520	1010	1680	1220	5440 b	25 ab	14 ab
Hairy Peruvian	1670	950	1610	1050	5280 bc	13 cd	6 cde
Sirsa # 9	1480	1070	1590	980	5120 bcd	23 abc	8 bcd
Williamsburg	1280	990	1560	1010	4850 bcde	19 abcd	7 cde
African	1470	900	1480	990	4840 bcde	18 bcd	9 bc
Moapa	1430	870	1520	920	4730 bcde	16 bcd	6 cde
Indian	1400	870	1400	810	4470 bcdef	17 bcd	8 bcd
Cherokee	1310	680	1030	690	3720 bcdefg	16 bcd	2 de
Calverde	1160	680	1120	630	3590 cdefg	16 bcd	6 cde
Lahontan	850	660	1160	770	3430 defg	18 bcd	9 bc
Zia	830	630	1050	740	3260 efg	17 bcd	9 bc
Du Puits	810	640	990	390	2830 fg	10 d	1 e
Narragansett	700	460	850	540	2550 g	21 abc	2 de
Ladak	230	160	400	210	1000 h	9 d	2 de

* Values followed by same letter are not significantly different.

** A fifth cutting of hay was accidently destroyed on August 7 before yields were taken. Observations indicated yields would have been similar to the July 9 harvest. Heavy rainfall during hurricanes damaged alfalfa plants so that fall growth was slow and no hay was harvested.

NOTE: Varieties were seeded on September 26, 1962 at rate of 20 pounds of seed per acre. Annual applications of 1200 to 1500 pounds per acre of 0-10-20 fertilizer containing 20 pounds of borax and 10 pounds of fritted trace elements FTE 503 were applied. Arredondo fine sand was limed to pH 6.5 higher plus an available calcium and magnesium level in plow layer above 1000 pounds CaO and 180 pounds MgO per acre.

Table 63. Yield in tons of dry matter per acre and other data from alfalfa varieties seeded in March 1962 and harvested in 1963 and 1964 at Woodford County, Kentucky (Expt. 107)

Accession No.	Variety	Entry No.	Harvest 5-18-64 (1)	Harvest 6-24-64 (2)	Harvest 8-5-64 (3)	Total Harvest 1963	2 year Summary '63-'64	Regrowth 6-3-64 1/	Bloom 6-24-64 1/
19-L1-200	Cherokee	1	2.046	1.139	.7811	3.966	5.1757	5.50	5.50
F.C. 34041	Williamsburg	2	2.152	1.245	.9089	4.305	5.1748	3.00	3.50
" 35983	Vernal	3	2.144	1.250	.8851	4.280	5.3181	7.00	7.00
" 36225	Cayuga	4	1.927	1.281	1.0494	4.258	5.2578	5.00	4.00
" 36297	Narragansett	5	2.166	1.223	.8176	4.207	5.4020	7.00	5.50
" 36073	Culver	6	2.050	1.128	.8103	3.988	5.1246	8.50	5.00
" 35984	Ranger	7	1.913	1.256	.8048	3.973	5.0005	6.00	5.00
" 35924	Stoneville-PCI	8	1.931	1.184	.9673	4.083	5.1337	3.00	6.00
" 35986	Atlantic	9	2.040	1.205	.8304	4.075	5.2852	6.00	5.00
" 35985	Du Puit	10	2.216	1.365	.7939	4.375	5.4257	1.00	1.00
" 35982	Buffalo	11	2.221	1.247	.8924	4.360	5.3062	3.00	6.00
L.S.D. 5%			.1902	N.S.	N.S.	N.S.	N.S.	1.6840	1.1129
L.S.D. 1%			.2568	N.S.	N.S.	N.S.	N.S.	2.2734	1.5024
C.V. %			6.4	13.8	34.3	11.4	11.2	23.3	15.8

1/ Rating scale: 1=most to 9=least
Randomized block design
Plot size 5' x 16'

Seeded March 27, 1962
Four Replications

Table 64. Yield in tons of dry matter per acre and other data from alfalfa varieties seeded in August 1960 and harvested in 1961, 1962, 1963 and 1964 at Woodford County, Kentucky. Average of six replications. (Expt. 65)

Accession No.	Variety	Entry No.	Yield (TDM/A) 5/18	6/24	8/15	9/21	1964	Ave. 1961-4	5/7/64 % g.cov.	6/4/64 % stand
F.C. 34716	Atlantic	1	1.306	.6059	.6473	.2105	2.769	4.361	50.00	30.83
" 34629	Buffalo	2	1.534	.8176	.7872	.3151	3.454	4.786	74.17	54.17
" 35234	Lahonton	3	1.488	.5962	.7726	.2993	3.156	4.117	71.67	50.00
" 34631	Narragansett	4	1.306	.7142	.6521	.2482	2.920	4.823	51.67	33.33
" 34628	Ranger	5	1.379	.7227	.7312	.2652	3.098	4.397	60.00	40.00
" 34627	Vernal	6	1.455	.7641	.6716	.1874	3.078	4.706	69.17	47.50
" 34103	Cardinal	7	1.096	.5378	.4100	.1351	2.179	4.395	30.83	24.17
99-L1-180	Orchies	8	1.377	.7032	.5852	.2117	2.877	4.752	52.50	38.33
" 182	PAG FD-100	9	1.146	.6412	.6363	.2093	2.633	4.692	39.17	36.67
" 184	N.C.E. 58	10	1.337	.6558	.7896	.2409	3.023	4.752	53.33	35.83
" 186	N.C.G. (57) [3]	11	1.271	.6838	.5974	.2117	2.764	4.656	50.83	35.00
F.C. 34540	Alfa	12	1.129	.5633	.4222	.1497	2.264	4.510	40.00	32.50
" 34630	Du Puits	13	1.124	.5280	.4295	.1411	2.223	4.384	29.17	25.83
" 34733	Moapa	14	1.155	.5159	.5061	.2281	2.405	3.553	25.00	26.67
" 34135	Rambler	15	1.123	.4015	.3869	.1241	2.036	3.015	24.17	14.17
" 34346	Teton	16	1.273	.4928	.4246	.1618	2.352	3.824	36.67	23.33
" 34041	Williamsburg	17	1.438	.8371	.9003	.3346	3.510	4.772	68.33	46.67
P.I. 256004	Glacier	18	1.151	.5937	.5426	.1679	2.455	4.520	44.17	30.83
99-L1-181	Maliano	19	1.497	.9733	.9125	.3796	2.762	4.496	87.50	77.50
" 183	N.C.F. (56)$_1$	20	1.234	.7276	.6010	.1971	2.759	4.721	55.83	40.00

table 64 continue

Accession No.	Variety	Entry no.	5/18	6/24	8/15	9/21	1964	Ave. 1961-4	5/7/64 % g. cov.	6/4/64 % stand
" 185	N.C.G. (57) [2]	21	1.287	.7251	.6193	.1971	2.829	4.829	57.50	43.33
" 187	Cherokee	22	1.141	.4721	.4210	.1338	2.168	4.423	25.83	21.67
09-L1-194	Haymor	23	1.168	.6096	.5001	.1643	2.442	4.586	42.50	36.67
" 190	N9-503	24	1.306	.6071	.5889	.1922	2.694	4.454	41.67	22.50
" 189	Cardinal	25	1.033	.5706	.5098	.1776	2.291	4.264	34.17	30.00
" 191	Resistidor	26	1.336	.7677	.6035	.2044	2.912	4.664	56.67	46.67
09-L1-192	N9-504	27	1.431	.6838	.7105	.2725	3.098	4.662	66.67	40.83
" 193	Du Puits(NK)	28	1.155	.6132	.4769	.1643	2.409	4.615	39.17	30.83
L.S.D. .05			.1899	.1542	.1542	.0677	.4315	.4019	15.528	12.024
L.S.D. .01			.2507	.2035	.2035	.0894	.5696	.5319	20.497	15.872
C.V. %			13.0	20.8	22.4	28.0	13.8	7.9	27.6	29.8

Randomized block design
Plot size 5'x16'

Seeded August 29, 1960
Six replications

KENTUCKY - Woodford County

MISSISSIPPI - Holly Springs

Table 65. ALFALFA VARIETY TEST
North Mississippi Branch Experiment Station
Holly Springs

1964

Variety	Pounds of dry matter per acre				
	First cutting April 27	Second cutting June 2	Third cutting July 16	Fourth cutting Sept. 8	Total four
Stoneville P. C. 1	2915	1147	786	2743	7591
Cody	2875	1162	726	2462	7225
Culver	2818	932	578	2617	6945
Williamsburg	2868	1146	731	2121	6866
Buffalo	2790	1012	706	2352	6860
Atlantic	2690	1164	677	2244	6775
Uinta	2720	1026	571	2332	6649
DuPuits	2080	762	480	2302	5624
LSD .05	350	148	119	ns	731
C. V. (%)	10.0	10.9	14.0	15.5	8.3

The test site was Grenada silt loam, A2. The soil had a pH of 6.2 when the test was seeded in September, 1962.

The stand of DuPuits has deterioated more than the others, thus the low yields of DuPuits.

There were five replications. Plot size was seven by sixteen. Yields were taken from a 5 by 16 swath.

Table 66. 1957 Alfalfa Variety Test
Location: Middle Ogden Field, Ithaca 1964 Data

Yield - Tons/acre (12% M)

Random Number	Entry	Seed Lot Number	6/22	8/5	9/14	Total Season
1	Scandia (Alfa)	57-51	.88	.00	.00	.88
2	Alfa	57-56	.60	.00	.00	.60
3	Alfa - Elite	57-52	.82	.00	.00	.82
4	DuPuits	57-53	.81	.00	.00	.81
5	DuPuits	57-49	.83	.00	.00	.83
6	Cardinal	57-63	.74	.00	.00	.74
7	Tourneur 501	57-57	.65	.00	.00	.65
8	GPR - 2	-	.66	.00	.00	.66
9	Rambler	57-55	1.17	.66	.00	1.83
10	Lahontin	57-54	2.03	1.77	.56	4.37
11	Ranger	57-59	2.01	1.38	.32	3.71
12	Purdue F	57-62	1.92	1.27	.23	3.42
13	N.Y. "A"	57-10	2.28	1.62	.43	4.33
14	N.Y. "B"	57-8	2.29	1.62	.47	4.38
15	N.Y. "C"	57-9	2.42	1.58	.43	4.43
16	N.Y. "A"	1955 seed	2.11	1.66	.41	4.18
17	N.Y. "B"	1955 seed	2.39	1.77	.54	4.70
18	N.Y. "C"	1955 seed	2.17	1.57	.42	4.16
19	Vernal	33273	2.13	1.61	.35	4.09
20	Vernal	57-48	2.04	1.41	.36	3.80
21	Narragansett	57-50	1.09	.47	.00	1.57
22	Narragansett	57-58	1.17	.37	.00	1.54
	Average		1.51	.85	.21	2.57
	F- Varieties		4.49**	81.05**	101.90**	113.70**
	L.S.D. (P=.05)		.29	.24	.06	.41
	C.V. %		15.3	22.1	23.8	13.6

Notes: (1) Good alfalfa production in seventh year on the wilt-resistant entries. Production on non-wilt resistant strains only weeds.

Table 67. 1958 Alfalfa Variety Trial
Location: W. Lamkin Field, Ithaca, N.Y. 1964 Data
Management: 3 cuts/season

Yield - Tons per Acre (12% M)

Random Number	Entry	N.Y. Seed Number	6/22	8/4	9/14	Season Total
1	Gillon	58-35	.35	.00	.00	.35
2	FD - 100	58-36	.30	.00	.05	.30
3	GPR - 2	58-34	.62	.30	.05	.97
4	Socheville	58-28	.58	.04	.00	.62
5	Alfa	58-29	.50	.00	.00	.50
6	Alfa	58-2	.42	.00	.00	.42
7	Alfa	57-51	.35	.00	.00	.35
8	Alfa	57-56	.39	.00	.00	.39
9	Cardinal	58-3	.46	.07	.00	.54
10	Cardinal	57-57	.84	.00	.00	.84
11	DuPuits	58-46	.35	.00	.00	.35
12	DuPuits	58-18	.52	.00	.00	.52
13	Vernal	58-16	1.54	1.46	.29	3.29
14	Vernal	58-47	1.29	1.20	.21	2.71
15	P. I. 246356	58-37	1.47	1.32	.29	3.08
16	N.Y. Syn A-57	58-1	1.64	1.40	.22	3.25
17	N.Y. Syn A-56	57-10	1.67	1.48	.29	3.45
18	N.Y. Syn B-56	57-8	1.78	1.67	.42	3.87
19	Ranger	58-17	1.41	1.17	.22	2.80
20	Narragansett (Cert.)	58-19	1.51	1.36	.26	3.13
21	Narragansett (Cert.)	58-20	1.10	.81	.07	1.99
22	Narragansett (H. S. sel.)	58-4	1.53	1.25	.19	2.97
23	Narragansett (Cert. Wyom.)	58-14	.88	.67	.02	1.57
24	Narragansett (Cert. Wyom.)	58-23	.97	.72	.03	1.73
25	Narragansett (Cert.)	57-50	.95	.73	.04	1.72
	Average		.94	.63	.10	1.67
	F - Varieties		12.00**	15.22**	24.44**	33.9**
	L.S.D. (P = .05)		1.42	.26	.07	.61
	C. V.%		35.3	33.4	56.6	29.0

Notes: (1) This is a very drouthy site; production was fair in 1963 where stands were still present after very light production in 1962; same situation in 1964.

(2) There is a difference in survival of the Narragansett lots - other test suggest lots 58-4 and 58-19 are different plant populations that have a level of wilt resistance.

Table 68. 1960 Alfalfa Variety Trial - Pulleyn Field, Ithaca
Location: Pulleyn Field 1964 data

Total Yield - Tons/Acre (12% M)

Random Number	Entry	N.Y. No.	6/9	7/23	9/9	Season Total	Total (Adj.)	% Alfalfa 6/9
1	N.Y. Syn. A	60-18	1.53	1.30	.48	3.31	3.31	53
2	N.Y. Syn. B	60-19	1.60	1.23	.50	3.32	3.32	57
3	H.S. Narrag.	60-20	1.60	1.20	.50	3.30	3.30	59
4	W.R. Narrag.	60-21	1.62	1.40	.44	3.46	3.46	72
5	W.R. Flemish	60-22	1.78	1.44	.56	3.78	3.77	72
6	N.Y. Syn. C	60-1	1.49	1.10	.44	3.03	3.03	40
7	Ross #2	60-2	1.41	.83	.27	2.51	2.51	35
8	Beard - 16 cl HLK	60-3	1.45	1.19	.42	3.06	3.06	57
9	Tuna	60-4	1.44	.95	.29	2.69	2.68	42
10	Arnim	60-5	1.25	.72	.17	2.14	2.14	19
11	Flandria	60-6	1.29	.90	.22	2.40	2.40	45
12	FD-100	59-6	1.39	.84	.24	2.46	2.46	38
13	FD-100	60-28	1.21	.76	.20	2.17	2.17	39
14	GPR- 1	60-12	1.24	.70	.20	2.14	2.14	32
15	Socheville	59-24	1.31	.85	.24	2.39	2.39	37
16	Narr.-Syn. 2	60-23	1.82	1.59	.60	4.01	4.01	76
17	Narr.-Syn. 2	60-24	1.52	1.26	.48	3.26	3.26	68
18	Narr.-Syn. 2	60-25	1.57	1.38	.53	3.48	3.48	57
19	Narr.-Syn. 1	(Garden)	1.79	1.43	.59	3.80	3.81	76
20	Narragansett	59-19	1.65	1.29	.46	3.40	3.40	64
21	Vernal	60-26	1.45	1.17	.38	3.00	3.00	67
22	Ranger	60-13	1.37	.97	.39	2.72	2.72	31
23	DuPuits	60-17	1.27	.83	.24	2.34	2.34	43
24	Alfa	60-15	1.09	.55	.11	1.75	1.75	27
25	Narragensett	60-14	1.44	1.13	.42	2.99	2.99	27
	Ave.		1.46	1.08	.37	2.92	2.92	
(RCB)	F-Var.		3.37**	5.19**	5.12**	38.89**	—	
	L.S.D. (P=.05)		.29	.34	.18		.74	
	C.V. %		17.3	27.6	41.7		22.0	
	Effic. %						100%	

Note: (1) Very dry site - production cut severely. Wilt became increasingly prevalent during year.

Table 69. 1961 Alfalfa Variety Trial
Location: Ketola Field #5, Ithaca 1964 data

Yield - Tons/acre (12% M)

Random Number	Entry	N.Y. Seed Lot #	6/9	7/21	9/3	Season Total	(adj) Total	% Grass 6/9
1	Multiple-leaf Bulk	61-60	1.98	1.25	.59	3.82	3.69	4
2	Hi-seed Narrag. Idaho-60	61-43	1.76	1.07	.40	3.23	3.26	12
3	Hi-seed Narrag. Calif-60	61-45	1.59	1.11	.42	3.12	3.22	10
4	Hi-seed Narrag. Bulk-Cal.60	61-63	1.66	1.16	.48	3.31	3.33	9
5	W.R. Narrag.	60-21	1.71	1.17	.44	3.32	3.34	11
6	Cayuga, Cal.-59	60-19	1.59	1.05	.46	3.11	3.09	14
7	Cayuga-Breeders, Idaho-60	61-44	1.53	1.03	.45	3.00	3.03	17
8	Arnim	60-5	1.37	.88	.29	2.53	2.56	22
9	G PR-1	60-12	1.38	.59	.18	2.16	2.21	33
10	F. D. 100	60-28	1.18	.60	.20	1.97	2.00	42
11	W.R. Flemish	60-22	1.61	1.18	.52	3.32	3.36	10
12	Flandria - Fr. Cert.	61-57	1.43	.82	.25	2.49	2.50	16
13	Flandria - Cal. -60	61-58	1.55	.95	.31	2.81	2.84	12
14	Flandria - Basic 60	61-59	1.64	.93	.27	2.84	2.82	10
15	Du-Puits	61-53	1.54	.88	.32	2.74	2.76	23
16	Vernal-Cert.	61-52	1.64	1.00	.39	3.03	3.01	15
17	Narrag-Cert.	61-54	1.74	1.25	.46	3.45	3.38	7
18	NK -507	61-51	1.68	1.15	.50	3.33	3.38	12
19	NK -508	61-50	1.62	1.11	.51	3.24	3.23	12
20	Culver	61-64	1.67	1.03	.43	3.12	3.12	22
21	Cody	61-65	1.06	.79	.39	2.25	2.22	41
22	NY-607	61-6	1.66	1.05	.51	3.23	3.20	12
23	NY-608	61-7	1.76	1.13	.48	3.38	3.33	12
24	NY-609	61-8	1.67	1.14	.49	3.30	3.28	14
25	NY-610	61-9	1.62	1.02	.53	3.18	3.07	21
	Average		1.59	1.01	.41	3.01	3.01	17
	F-Varieties		3.54**	3.61**	3.98**	3.97**		
	L.S.D. (P=.05)		.28	.26	.16	.63	.61	
	C.V. (%)		15.5	22.4	33.0	18.0	17.6%	
							EFFIC. = 105%	

Notes: (1) Test under stress from drouth, low potash and bacterial wilt. Grass fraction (6/9) reflects earlier stand damage by winter killing factors. Wilt symptoms very prevalent by late summer.

Table 70. 1962 Alfalfa Variety Trial
Location: Ketola Field #1, Ithaca 1964 data

Random Number	Entry	N.Y. No.	Yield - Tons per acre (12% M) 6/9	7/21	9/3	Total Season	(adj) Total Yield (lattice)	Potash Deficiency Symptoms (10=most) 6/10
1	W-60-B	62-51	2.08	1.36	.42	3.86	3.87	3.3
2	W-60-A	62-52	1.89	1.34	.44	3.66	3.58	3.3
3	CL-10	62-61	2.06	1.32	.46	3.84	3.87	5.7
4	Uinta	62-48	1.84	1.33	.48	3.65	3.67	4.2
5	Utah J-2	62-49	1.98	1.32	.40	3.70	3.67	3.8
6	A-253a	62-50	2.09	1.40	.47	3.96	3.98	3.8
7	Cherokee	62-67	1.99	1.30	.56	3.86	3.90	4.2
8	Culver	62-65	1.93	1.21	.39	3.54	3.65	4.7
9	Hi-seed Narrag. (Ida.-60)	61-43	2.22	1.42	.49	4.13	4.15	4.2
10	Hi-seed Narrag. (Ida.-61)	62-30	2.08	1.42	.47	3.98	4.08	4.8
11	Cayuga-Breeders 60	61-44	2.14	1.46	.52	4.12	4.23	4.2
12	Cayuga-Breeders 61	62-64	2.09	1.50	.50	4.09	4.04	4.5
13	Cayuga-Fd. 61	62-55	2.09	1.32	.51	3.93	3.98	3.8
14	Cayuga-Cert.-61	62-62	2.22	1.43	.50	4.15	4.18	4.5
15	Vernal-Cert.-60	61-52	2.06	1.36	.43	3.85	3.81	5.2
16	Vernal-Cert.-61	62-57	2.16	1.27	.45	3.88	3.86	4.8
17	Narrag. Cert.-61	62-56	2.11	1.41	.50	4.03	3.97	4.3
18	Narrag. Cert.-60	61-54	2.24	1.48	.47	4.19	4.23	4.0
19	Mega	62-69	2.42	1.67	.55	4.64	4.59	1.3
20	DuPuits	62-60	2.47	1.64	.59	4.71	4.67	1.7
21	Franck's Langmeiler	62-53	2.18	1.47	.54	4.19	4.20	5.3
22	AT-525	62-70	2.23	1.41	.51	4.15	3.99	5.5
23	Multiple-leaf Bulk	61-60	2.44	1.51	.60	4.55	4.53	3.5
24	Ranger	62-58	2.02	1.31	.54	3.87	3.87	5.8
25	Cody	61-65	1.99	1.33	.53	3.85	3.83	6.0
	Average		2.12	1.40	.49	4.02	4.02	4.3
	F-Varieties		5.62**	5.10**	2.54**	6.20**		
	L.S.D. (P=.05)		.19	.13	.10	.33	.28	
	C.V. %		7.8	8.3	17.0	7.2	6.1	
	Ave. DM%						136	
	Effic. %							

Note- (1) Very excellent trial. Drouth effects in late summer

(2) Potash deficiency differences rarely expressed with the consistency observed in early June at this site.

Table 71. 1962 Alfalfa Variety Trial
Location: McGowan Field, Ithaca 1964 data

Yield - Tons per acre (12%M)

Random Number	Entry	N.Y. No.	6/2	7/14	8/28	Total Season	(Adj.) Total Yield
1	CL-10	62-61	1.98	1.67	1.43	5.08	5.12
2	Uinta	62-48	1.94	1.61	1.49	5.04	5.07
3	Utah J-2	62-49	1.87	1.38	1.35	4.60	4.59
4	A-253a	62-50	1.94	1.46	1.31	4.71	4.92
5	Cherokee	62-67	2.03	1.71	1.43	5.16	5.15
6	Culver	62-65	1.94	1.42	1.31	4.67	4.69
7	Hi Seed Narrag.	61-43	2.13	1.80	1.45	5.38	5.37
8	Hi Seed Narrag.	62-30	1.98	1.68	1.38	5.04	5.12
9	Cayuga - (Cert. 61)	62-62	2.28	1.77	1.49	5.54	5.43
10	Cayuga - (Breed. 60)	61-44	2.09	1.71	1.36	5.16	5.21
11	Vernal	62-57	1.95	1.46	1.22	4.63	4.66
12	Narragansett	62-56	2.25	1.79	1.45	5.50	5.35
13	W-60-B	62-51	1.99	1.74	1.42	5.15	5.28
14	W-60-A	62-52	1.84	1.46	1.33	4.63	4.68
15	Europe A-10	62-68	2.51	2.01	1.48	6.00	5.90
16	Multiple-leaf bulk	61-60	2.44	1.92	1.50	5.87	5.78
17	DuPuits	62-60	2.56	2.19	1.61	6.36	6.37
18	AT-525	62-70	2.07	1.66	1.34	5.07	5.01
19	Ranger	62-58	2.05	1.47	1.30	4.83	4.89
20	Cayuga (Breed. 61)	62-64	2.23	1.84	1.49	5.56	5.44
21	NY 607 $(14,18,40,55)_2$	61-6	2.10	1.72	1.50	5.32	5.44
22	NY 608 $(9,19,40,55)_2$	61-7	2.34	1.82	1.51	5.66	5.50
23	NY 610 $(91,18,40,72)_2$	61-9	2.17	1.78	1.48	5.43	5.35
24	NY 613 (14x55)x(19x75)	61-12	2.07	1.82	1.50	5.39	5.49
25	NY 606 $(14,55,19,75)_2$	61-5	2.25	1.86	1.44	5.55	5.51
	Average		2.12	1.71	1.42	5.26	5.26
	F-Varieties		5.12**	6.27**	4.24**	7.00**	—
	L.S.D. (P=.05)		.24	.22	.12	.48	.40 = L
	C.V. (%)		9.9%	11.1%	7.4%	8.0%	6.7 = S.
							1.43 = E.

Notes: (1) Replications averages range from 4.6-6.4 T/A; this reflects differential damage during winter of seeding year.
(2) 1962 yields emphasize the value of early harvest in a drouth year.

Table 72. 1962 Alfalfa Varieties and Synthetics - New York Cage Increases

Location: McGowan 1964 Data

Yield - Tons per acre - 12% Moisture

Entry Identification	Clone Combination	1st Hvst. 6/4	2nd Hvst. 7/16	3rd Hvst. 8/28	Total Season
A58-1	$(9,14,18,19)_2$	2.03	1.76	1.52	5.30
A58-2	$(18,40,72,75)_2$	2.01	1.58	1.32	4.91
A58-3	$(14,19,55,75)_2$	2.14	1.75	1.41	5.30
A58-4	$(C\text{-}91,55,72,75)_2$	2.32	1.80	1.47	5.59
A58-5	$(14,18,40,55)_2$	2.01	1.71	1.46	5.17
A58-6 (1-3)	(49-9x49-14)DCC	2.08	1.80	1.52	5.40
A58-7 (1-3)	(49-9x49-18)DCC	2.00	1.80	1.47	5.28
A58-7 (2-4)	(49-14x49-18)DCC	1.99	1.76	1.44	5.20
A58-9	$(9,19,40,55)_2$	1.95	1.62	1.41	4.98
A48-10	$(C\text{-}91,19,72,75)_2$	2.02	1.67	1.41	5.10
A58-11	$(C\text{-}91,18,40,72)_2$	1.93	1.60	1.34	4.87
A58-12	$(9,14,18,19)_2$	2.01	1.64	1.47	5.12
A58-1	$(9,14,18,19)_2$	2.12	1.81	1.48	5.41
A58-5	$(14,18,40,55)_2$	2.25	2.03	1.64	5.92
A58-6 (1-3)	(49-9x49-14)DCC	2.16	1.87	1.54	5.56
A58-8 (1-3)	(49-9x49-18)DCC	1.94	1.76	1.49	5.20
A58-8 (2-4)	(49-14x49-19)DCC	2.13	1.80	1.48	5.41
A58-9	$(9,19,40,55)_2$	2.02	1.76	1.54	5.32
A58-10	$(C\text{-}91,19,72,75)_2$	2.10	1.83	1.58	5.51
A58-12	$(9,14,18,19)_2$	2.10	1.80	1.53	5.43
A58-13		1.42	1.12	.97	3.51
A58-13 (1-3-5)		1.31	1.04	.86	3.21
Cayuga		2.27	1.90	1.65	5.81
Vernal		1.98	1.45	1.29	4.72
Ranger		1.96	1.62	1.48	5.06
Average		2.01	1.69	1.43	5.14
"F" Entries		7.14**	9.50**	6.25**	10.34**
L.S.D. (P=.05)		.23	.20	.20	.53
C.V. (%)		9.2	9.4	11.1	8.2

Table 73. 1962 Flemish Alfalfa Variety Trial

Location - McGowan Field, Ithaca 1964 data

Yield - Tons/acre (12% M)

Random Number	Entry	N.Y. No.	6/2	7/14	8/28	Total Season
1	Flandria	61-57	2.72	2.34	1.84	6.91
2	DuPuits	62-60	2.71	2.34	1.88	6.93
3	Francks Langmeiler	62-53	2.32	2.05	1.73	6.10
4	Flamande, SC118	62-54	2.62	2.25	1.83	6.71
5	Hi-Seed Narrag.	62-30	2.36	1.80	1.62	5.78
6	Europe A-10	62-68	2.62	2.29	1.72	6.63
7	Alfa	62-63	2.71	2.21	1.59	6.51
8	NO 507	61-51	2.61	2.25	1.89	6.75
9	Alfa	61-56	2.61	2.38	1.75	6.75
10	DuPuits	61-53	2.48	2.44	1.92	6.84
11	NK 505	59-5	2.60	2.35	1.79	6.74
12	NO 508	61-50	2.71	2.19	1.74	6.63
	Average		2.59	2.24	1.78	6.61
	"F"-entries		1.79-	4.17**	2.35*	3.64**
	L.S.D. (P=.05)		.28	.24	.19	.50
	C.V. (%)		8.8	8.4	8.6	6.0

Table 74. 1962 Alfalfa Variety Trial
Location: Macedon Center (Wayne Co.) 1964 data

Random Number	Entry	N.Y. Number	Yield - Tons/acre (12%M) 6/12	7/27	Total Season
1	Cayuga	62-62	2.26	1.47	3.73
2	Cayuga	62-64	2.40	1.63	4.03
3	AT 525	62-70	2.54	1.24	3.79
4	DuPuits	62-60	2.35	1.47	3.82
5	Ranger	62-58	2.16	1.30	3.46
6	Culver	62-65	2.46	1.19	3.65
7	Vernal	62-57	2.59	1.19	3.78
8	CL-10	62-61	2.28	1.38	3.66
9	Narrag.	62-56	2.33	1.34	3.67
10	Hi-Seed Narrag.	61-43	2.47	1.62	4.09
11	Hi-Seed Narrag.	62-30	2.69	1.23	3.92
12	Cherokee	62-67	2.33	1.19	3.52
13	Uinta	62-48	2.23	1.11	3.34
14	Fr. Langmeiler	62-53	2.65	1.58	4.22
15	Flamande	62-54	2.43	1.43	3.86
16	Alfa	62-63	2.45	1.30	3.75
17	Multiple Leaf	61-60	2.45	1.51	3.95
18	W.R. Narrag.	60-21	2.40	1.17	3.57
19	W.R. Flemish	60-22	2.44	1.35	3.79
20	Comb. E NY609	61-8	2.39	1.28	3.67
21	Comb. E A58-10	61-40	2.32	1.35	3.67
22	Comb. E NY617	61-16	2.26	1.34	3 60
	Average		2.40	1.35	3.75
	F-entries		1.74*	1.06-	1.23-
	L.S.D. (P=.05)		.28	.90	.53
	C.V. %		9.4	23.9	11.2

Notes: Good first growth then no rain rest of growing season. Area very stoney. The results in this trial are highly dependent on moisture availability. While stands are good, second growth varied in height from 6" to 30"+. 5 replications are insufficient to handle this type of variation; results have little relation to production potential differences of the entries. No third harvest possible.

Table 75. 1963 Alfalfa Variety Trial
Location: Savage Field, Ithaca. 1963 Data

Yield - Tons/Acre (12% M)

Random No.	Entry	N.Y. No.	6/16	8/3	9/11	Total Season	(adj.) Total	% Weeds 8/3
1	N9-502	63-65	1.96	1.98	.48	4.42	4.40	10
2	N9-505	63-67	2.15	1.85	.42	4.42	4.47	5
3	NO-507	63-66	2.28	1.75	.42	4.45	4.36	5
4	N3-510	63-68	1.63	1.88	.37	3.88	3.97	20
5	WL-202	63-70	2.07	1.85	.29	4.21	4.20	16
6	Hybrid Milfeuil	63-71	1.69	1.69	.41	3.80	3.70	12
7	DuPuits	63-61	2.31	2.03	.51	4.86	4.57	2
8	Ranger	63-62	1.69	1.66	.33	3.68	3.61	19
9	Cayuga	63-63	1.82	2.04	.42	4.28	4.08	18
10	Vernal	63-64	1.96	1.91	.30	4.17	4.11	9
11	Narragansett	63-69	2.04	1.77	.31	4.13	4.14	7
12	Saranac	60-22	2.04	1.88	.44	4.36	4.25	11
13	Hi Seed Narr.	62-30	1.98	1.74	.29	4.01	4.17	9
14	Franck's Langmeiler	62-53	1.81	1.76	.30	3.87	3.96	16
15	Cody	61-65	1.55	1.54	.32	3.41	3.52	22
16	Flemish Creep. (A61-11)	63-43	2.12	1.83	.32	4.27	4.31	16
17	A61-7	63-39	1.63	1.65	.32	3.60	3.66	30
18	A61-8	63-40	1.32	1.45	.22	2.99	3.17	44
19	A61-2	63-31	1.48	1.64	.28	3.40	3.57	33
20	NY651	63-16	1.52	1.61	.31	3.45	3.39	43
21	Leaf Spot Res.-P.C. Comp.	63-72	1.94	1.82	.33	4.09	4.08	12
22	Leaf Spot Res.-Vernal T. C.	63-73	2.12	1.85	.21	4.19	4.26	16
23	Cayuga (Breeders)	62-64	1.95	1.89	.37	4.22	4.11	17
24	Culver	62-65	2.02	1.75	.26	4.03	4.07	16
25	A61-15 (Creep.)	63-54	1.57	1.58	.12	3.27	3.35	61
		Ave.	1.87	1.78	.33	3.98	3.98	19
		"F" Var.-	6.76**	2.19**	5.88**	5.15**	—	
		L.S.D. (P=.05)	.29	.29	.10	.55	.45	
		C.V. %	13.4	13.9	26.4	12.0	9.7	EFFIC. = 151%

Notes: (1) Excellent seedling stands damaged by severe heaving in March 1964; all plants heaved at least 3". Recovery good, especially on Flamande and Narragansett types. Many plants had crowns cut off on first harvest.
(2) Chicory and carrot content of second cut an excellent reflection of vigor and survival.

Table 76. 1963 New York Variety and Double - X Trial - Alfalfa
Location: Helfer Field #5, Ithaca 1964 data

Rand. No.	Entry	N.Y. No.	Yield - Tons/acre (12% M) 6/4	7/17	8/31	Season Total	(Adj.) Total
1	A61-4 (C91x60)x(9x19)	-	2.27	2.16	1.56	5.99	5.98
2	A61-4 comp. (C91x60)	63-33	2.20	2.12	1.52	5.83	5.83
3	A61-4 comp. (9 x 19)	63-34	2.23	2.20	1.52	5.94	5.96
4	A61-5 (14x60) x (9xC91)	-	2.20	2.20	1.51	5.90	5.86
5	A61-5 comp. (14x60)	63-35	2.18	2.09	1.40	5.67	5.70
6	A61-5 comp. (9xC91)	63-36	2.21	2.06	1.58	5.85	5.84
7	WL-202	63-70	2.36	2.03	1.36	5.75	5.77
8	Exptl. Creeper-Flemish	63-43	2.33	2.15	1.40	5.88	5.85
9	Cayuga (Breeders)	62-64	2.31	2.06	1.38	5.76	5.81
10	A61-17 (14x60)x(C91x57)	-	2.15	2.02	1.34	5.51	5.51
11	A61-17 comp. (14x60)	63-57	2.15	1.92	1.30	5.37	5.38
12	A61-17 comp. (C91 x 57)	63-58	1.94	1.81	1.25	5.00	5.04
13	Hi Seed Narragansett	62-30	2.39	2.24	1.56	6.19	6.22
14	NY651 (19xC91) 2	63-15	2.03	1.90	1.38	5.31	5.29
15	W-60 (Wyom.)	-	2.12	2.05	1.46	5.63	5.57
16	A61-1 (9x19) 2	63-30	2.16	2.12	1.50	5.77	5.77
17	A61-2 (9x19) 2	63-31	2.17	2.23	1.48	5.87	5.92
18	A61-3 (9x19) 2	63-32	2.11	2.11	1.42	5.64	5.63
19	A61-7 (9,19,C91) 2	63-39	2.17	2.17	1.50	5.85	5.82
20	A61-8 (60,57,C91) 2	63-40	2.15	1.98	1.35	5.48	5.45
21	Saranac	60-22	2.45	2.45	1.69	6.59	6.57
22	Cayuga	63-63	2.32	2.20	1.44	5.95	5.94
23	Vernal	63-64	2.41	2.12	1.39	5.92	5.92
24	Narragansett	63-69	2.36	2.13	1.49	5.98	5.99
25	DuPuits	63-61	2.32	2.46	1.59	6.38	6.40
	Ave.		2.23	2.12	1.45	5.80	5.80
	"F" - Entries		4.06**	7.38**	6.00**	9.61**	
	L.S.D. (P=.05)		.17	.15	.12	.30	.29
	C.V. (%)		6.7	6.2	7.1	4.5	4.3
							EFFIC. = 106%

Table 77. 1963 New York Double Cross Alfalfa Trial

Location: Ketola #2 1964 Data

Yield - Tons/acre (12% M)

Rand. No.	Entry	N. Y. No.	6/8	7/21	9/2	Season Total	(adj.) Total
1	A61-4	(63-33; 63-34)	2.33	1.61	1.04	4.98	5.06
2	A61-4	63-33	2.20	1.72	1.03	4.95	5.14
3	A61-4	63-34	2.21	1.82	1.11	5.14	5.01
4	A61-5	(63-35; 63-36)	2.27	1.72	1.09	5.08	5.13
5	A61-5	63-35	2.34	1.80	1.04	5.19	4.93
6	A61-5	63-36	2.29	1.75	1.05	5.10	5.10
7	A61-18	(63-59;63-60)	2.22	1.72	1.03	4.96	4.91
8	A61-18	63-59	2.19	1.63	.85	4.66	4.64
9	A61-18	63-60	2.31	1.82	1.05	5.19	5.18
10	A61-17	(63-57; 63-58)	2.27	1.55	.93	4.75	4.84
11	A61-17	63-57	2.33	1.60	1.00	4.93	4.93
12	A61-17	63-58	2.27	1.60	.98	4.86	4.81
13	A61-16	(63-55; 63-56)	2.28	1.57	.92	4.76	4.79
14	A61-16	63-55	2.28	1.56	.81	4.65	4.69
15	A61-16	63-56	2.26	1.55	.92	4.73	4.83
16	A61-1	63-30	2.26	1.81	1.08	5.15	5.15
17	A61-2	63-31	2.34	1.77	1.05	5.16	5.16
18	A61-3	63-32	2.32	1.71	1.09	5.12	5.12
19	A61-7	63-39	2.39	1.72	.97	5.08	4.96
20	A61-8	63-40	2.30	1.66	1.04	5.00	5.09
21	Saranac	60-22	2.41	1.85	1.07	5.32	5.28
22	Cayuga	63-63	2.40	1.80	1.05	5.26	5.21
23	Vernal	63-64	2.77	1.74	.96	5.47	5.47
24	Narragansett	63-69	2.47	1.75	1.02	5.24	5.29
25	DuPuits	63-61	2.42	1.99	1.09	5.51	5.50
		Ave.	2.32	1.71	1.01	5.05	5.05
		F - Varieties	1.52 —	3.23 **	3.57 **	2.41 **	
		L.S.D.(P=.05)	.27	.17	.12	.42	.34
		C.V. - %	10.0	8.9	9.9	7.2	5.8
		Efficiency - %					153%

Table 78. 1963 Creeping Rooted Alfalfa Trial
Location: Helfer #5 1964 data

Rand. No.	Entry Identification	N.Y. No.	Yield - Tons/acre (12% M) 6/16	7/30	9/14	Season Total
1	A61-12 comp. (Cr.AxE&F)	63-44	2.58	2.38	1.06	6.01
2	A61-12 comp. (Cr.BxE&F)	63-45	2.49	2.37	.85	5.71
3	A61-12 comp. (Cr.CxE&F)	63-46	2.29	2.38	1.01	5.68
4	A61-12 comp. (Cr.DxE&F)	63-47	2.30	2.55	.95	5.81
5	A61-12 Bulk-equal seed		2.48	2.41	1.01	5.90
6	A61-13 comp. (Cr.AxJ&N)	63-48	2.31	2.00	.45	4.76
7	A61-13 comp. (Cr.BxJ&N)	63-49	1.91	2.07	.41	4.40
8	A61-13 comp. (Cr.CxJ&N)	63-50	1.97	1.96	.34	4.27
9	A61-13 comp. (Cr.DxJ&N)	63-51	2.13	2.21	.38	4.71
10	A61-13 Bulk-equal seed		2.22	2.15	.53	4.90
11	A61-14 Bulk-equal seed		2.46	2.19	.88	5.53
12	A61-14 comp.	63-52	2.34	2.24	.86	5.44
13	A61-14 comp.	63-53	2.44	2.30	.85	5.59
14	A61-15	63-54	2.15	2.08	.54	4.77
15	A61-11	63-43	2.38	2.50	.96	5.83
16	Cayuga	63-63	2.30	2.34	1.10	5.74
17	Vernal	63-64	2.61	2.41	.98	6.00
18	DuPuits	63-61	2.65	2.59	1.26	6.50
		Ave.	2.33	2.28	.80	5.42
		"F"-Varieties	2.53 **	4.33**	50.8**	9.81**
		L.S.D. (P=.05)	.36	.25	.11	.56
		C.V. (%)	13.6	9.5	12.1	9.1

NEW YORK - Ithaca

Table 79. 1961 Alfalfa Variety Trial - Jefferson Co.
Location: Pierrepont Manor, N. Y. 1964 Data

m r	Entry	New York Seed Lot #	Yield - Tons per Acre 1st cut 6/17	2nd cut 7/17	Season Total	% Alfalfa 6/17
	Multiple-leaf-Bulk	61-60	2.18	.87	3.05	34
	Hi-Seed Narr.--Idaho	61-43	2.11	.66	2.77	26
	W. R. Narrag.	60-21	2.37	.73	3.10	28
	Cayuga-Cal.-59	60-19	2.06	.42	2.48	16
	Cayuga-Breeders-60	61-44	1.98	.42	2.40	14
	NK-507	61-51	2.21	.67	2.88	25
	NK-508	61-50	2.32	.89	3.21	34
	Culver	61-64	2.11	.46	2.57	17
	Vernal (Cert.)	61-52	2.18	.44	2.61	16
	Narrag. (Cert.)	61-54	2.55	.83	3.38	34
	Arnim	60-5	2.34	.63	2.96	28
	A53-9 (9,19,40,55) Syn 2	61-39	2.19	.65	2.84	23
	NY627 (55x91)SC	61-26	2.14	.46	2.60	17
	NY623 (40x55)SC	61-22	2.01	.35	2.35	11
	NY614 (72x75)x(55x91) DC	61-13	1.95	.54	2.50	17
	NY607 (14,18,40,55) Syn 2	61-6	2.03	.56	2.58	16
	NY608 (9,19,40,55) Syn 2	61-7	2.26	.59	2.85	25
	NY610 (C91,18,40,72) Syn 2	61-9	2.08	.39	2.48	13
	Ranger	61-55	2.04	.41	2.45	18
	DuPuits	61-53	2.03	.55	2.58	20
	F.D. 100	60-38	2.21	.86	3.07	36
	W.R. Flemish	60-22	2.29	.66	2.96	30
	Ave.		2.24	.59	2.82	23
	F-Entries		1.33	2.80**	2.35**	
	L.S.D. (P=.05)		.36	.28	.53	
	C.V. (%)		13.3	37.7	15.3	

Notes: (1) Heavy growth on first harvest with high grass content; 2nd cut mostly alfalfa.
(2) Survival variable but data suggest genetic differences has influenced survival and vigor.
(3) No growth for 3rd harvest; stands gone out in part of test over summer. No wilt symptoms observed.

Table 80. 1962 Alfalfa Variety Trial
Location: Canton, N. Y. - A.T.I. 1964 data

Yield - Tons/acre (12%M)

Random Number	Entry	N. Y. No.	6/17	7/29	9/10	Total Season	% Alfalfa 6/17
1	Cayuga	62-62	2.58	1.66	1.20	5.43	88
2	Cayuga	62-64	2.47	1.48	1.16	5.11	90
3	AT 525	62-70	2.85	1.31	1.09	5.25	88
4	DuPuits	62-60	2.91	1.52	1.13	5.56	98
5	Ranger	62-58	2.48	1.43	1.19	5.10	88
6	Culver	62-65	2.63	1.37	1.13	5.12	88
7	Vernal	62-57	2.65	1.37	1.10	5.12	82
8	CL-10	62-61	2.84	1.60	1.23	5.67	92
9	Narrag.	62-56	2.73	1.72	1.25	5.70	96
10	Hi-Seed Narrag.	61-43	2.70	1.72	1.23	5.65	97
11	Hi-Seed Narrag.	62-30	2.56	1.63	1.18	5.37	90
12	Cherokee	62-67	2.65	1.45	1.14	5.23	86
13	Uinta	62-48	2.49	1.56	1.24	5.29	88
14	Fr. Langmeiler	62-53	2.53	1.56	1.14	5.22	91
15	Flamande	62-54	2.73	1.31	1.01	5.05	94
16	Alfa	62-63	2.96	1.58	1.07	5.60	100
17	Multiple Leaf	61-60	2.87	1.79	1.29	5.94	96
18	W.R. Narrag.	60-21	2.65	1.62	1.16	5.43	95
19	W.R. Flemish	60-22	2.93	1.67	1.29	5.89	91
20	Comb. E NY 609	61-8	2.69	1.67	1.32	5.68	93
21	Comb. E A58-10	61-40	2.68	1.52	1.16	5.36	91
22	Comb. E NY617	61-16	2.69	1.58	1.26	5.52	
	Average		2.69	1.55	1.18	5.42	
	F-entries		2.16**	2.65**	2.52**	2.26**	
	L.S.D. (P=.05)		.28	.23	.14	.49	
	C.V. (%)		8.3	11.9	9.3	7.2	

Notes: Very favorable season at this site. In last cut, wilt symptoms observed on some plots of Alfa, DuPuits and Flamande. Multiple-leaf entry looked excellent.

Table 81. 1963 Alfalfa Variety Trial - Otsego County
Location: Morris, New York 1964 Data
Gene Quintin Farm

Yield - Tons/acre (12% M)

Random Number	Entry	N.Y. Seed Number	Gr. Plot	6/11	7/23	Total Season	% Stand 5/5	% Stand 6/11	% Alfalfa 7/23
1	N9 - 502	63-65	(11.1)	2.81	1.10	3.91	58	67	87
2	N9 - 505	63-67	(12.2)	2.93	1.04	3.96	70	56	87
3	NO - 507	63-66	(12.8)	2.39	.88	3.27	36	52	89
4	N3 - 510	63-68	(14.9)	2.36	.86	3.21	56	64	91
5	WL - 202	63-70	(12.0)	3.09	1.08	4.17	58	59	72
6	Hybrid Milfeuil	63-71	(11.1)	2.81	.88	3.69	60	51	84
7	DuPuits	63-61	(11.6)	2.56	.89	3.45	44	65	91
8	Ranger	63-62	(12.8)	2.35	.80	3.15	40	56	80
9	Cayuga	63-63	(11.6)	3.10	1.18	4.28	62	60	77
10	Vernal	63-64	(11.8)	2.94	.98	3.92	62	65	86
11	Narragansett	63-69	(11.5)	2.83	.81	3.64	44	42	82
12	Saranac	60-22	(16.6)	2.74	.90	3.64	50	56	86
13	Hi-Seed Narrag.	62-30	(11.2)	2.92	1.07	3.99	52	65	84
14	Creeper-Flemish (A61-11)	63-43	(12.3)	2.76	.78	3.54	46	54	79
15	(A61-7)	63-39	(11.9)	1.97	.54	2.51	26	50	59
16	(A61-8)	63-40	(11.4)	1.98	.55	2.52	34	52	66
17	(A61-10)	63-42	(14.4)	2.74	.83	3.57	44	48	72
18	Franck's Langmeiler	62-53	(10.4)	2.58	.89	3.47	54	56	91
19	Cody	61-65	(11.8)	2.21	.53	2.74	42	40	64
20	Cayuga (Breeders)	62-64	(13.4)	2.53	.97	3.50	50	64	80
21	A61-2	63-31	(12.2)	2.28	.75	3.03	42	49	78
22	NY651	63-16	(12.2)	2.21	.57	2.78	34	44	61
		Average		2.60	.86	3.45			
		F - Varieties		2.75**	5.15**	3.74**			
		L.S.D. (P=.05)		.57	.23	.74			
		C. V. (%)		17.5	21.6	17.0			

Notes: (1) Quite severe heaving influenced stands. Drainage differences within trial caused considerable variation in survival and yield potential. Performance of synthetic combinations paralleled Savage field observations but other entries do not.
(2) Severe drouth in late summer -- no third harvest possible.

NORTH CAROLINA

In a strain test in the upper mountain area of North Carolina the 4 year average yield of Cherokee (using the average of the 3 MS B entries to represent Cherokee) was 109 percent of the average of Atlantic and Williamsburg (Table 82). Additional comparisons between entries in this test are of interest. N.C. Syn. E(58) was produced by interplanting plants of MS A(57) and MS B(57) and harvesting seed in bulk. On the basis of 4 years' data, E(58) yielded 95 percent of the average of its parents indicating no advantage in crossing these populations in this manner. The G series synthetics had as a common parent N.C. Syn F(56)1. The other parents for these synthetics were MS A(55), MS B(55), Narragansett, and buffalo for synthetics G-1, 2, 3, and 4 respectively. Seed of these synthetics was produced by interplanting the 2 parents as described for E(58). G(57)1 and G(57)2 were approximately .8 tons higher yielding for the 4 years than the other two G synthetics and were similar to the F(56)1 parent.

Table 82. A-104. Alfalfa variety and synthetic test. Field D-7, Upper Mountain Research Station, Laurel Springs, N. C.
Seeded 8-3-60. 4 reps. 5' x 20' plots.

Entry	Stand Count[1] 5-25-64	T/A dry wt. cutting dates 5-15-64	6-25-64	7-28-64	1964 Total	1963 Total	1962 Total	1961 Total	4 year Total
Atlantic	34.0	1.19	.31	.65	2.15	3.47	2.09	2.23	9.94
Buffalo	23.5	1.18	.33	.84	2.35	3.69	2.40	2.59	11.03
DuPuits	48.3	1.17	.31	.69	2.17	3.26	1.96	2.92	10.31
Maliani	24.5	1.13	.42	.87	2.42	2.98	1.85	2.33	9.58
Narragansett	23.8	1.25	.29	.69	2.23	3.54	2.03	2.63	10.43
Orchies	36.0	1.19	.31	.68	2.18	3.44	2.09	2.67	10.38
Williamsburg	21.3	1.03	.31	.80	2.14	3.41	2.25	2.46	10.26
N.C. Syn. E(58)	20.8	1.14	.30	.78	2.22	3.53	2.52	2.59	10.86
" " F(56)1	31.0	1.19	.35	.81	2.35	3.56	2.26	3.02	11.19
" " G(57)1	39.0	1.19	.33	.76	2.28	3.64	2.29	2.91	11.12
" " G(57)2	33.3	1.15	.36	.83	2.34	3.66	2.29	2.70	10.99
" " G(57)3	37.8	1.27	.40	.66	2.33	3.46	1.85	2.52	10.16
" " G(57)4	25.5	1.14	.40	.77	2.31	3.25	2.05	2.60	10.21
MSA (1957)	28.5	1.22	.38	.87	2.47	3.90	2.53	2.58	11.48
" (1959)	19.3	1.25	.34	.80	2.39	3.63	2.44	2.57	11.03
MSB (1955)	26.3	1.20	.35	.85	2.40	3.54	2.43	2.61	10.98
" (1957)	17.3	1.13	.38	.87	2.38	3.54	2.68	2.81	11.41
" (1959)	18.5	.95	.25	.72	1.92	3.39	2.46	2.83	10.61
LSD (05)					.34	.26	.35	N.S.	
LSD (01)					.45	.35	.47	N.S	
C.V. (%)					10.5	5.3	11.0	12.6	

[1] Number of empty 4" squares in 12 square feet

Table 83. Alfalfa Variety and Strain Tests, Simpson Experiment Station (Anderson County) - Clemson University, South Carolina - 1961 - 1964.

Variety or Strain	Yield per acre in tons of oven-dry forage[1] 1961	1962	1963	1964	Average (61-64)
N. C. E (58)	4.62 a	4.68 a	5.66 a	5.57 a	5.13 a
N. C. G (57) 2	4.51 ab	4.65 a	5.59 a	5.29 ab	5.01 ab
Oklahoma Common	4.21 cd	4.51 a	5.33 a	5.60 a	4.91 ab
N. C. F (56) 1	4.52 ab	4.59 a	5.55 a	4.92 bcd	4.90 ab
Du Puits	4.52 ab	4.41 a	5.53 a	4.47 cde	4.81 ab
Vernal	4.21 cd	4.59 a	5.25 a	5.04 bc	4.77 ab
Atlantic	4.25 bcd	4.36 a	5.35 a	5.13 bc	4.77 ab
N. C. G (57) 3	4.56 a	4.45 a	5.31 a	4.61 de	4.73 b
Cody	3.90 e	4.39 a	5.24 a	5.09 bc	4.66 b
Narragansett	4.11 cde	4.42 a	5.23 a	4.76 cde	4.63 bc
Moapa	4.02 de	3.81 b	4.46 b	4.96 bcd	4.31 cd
Indian	3.92 e	3.53 b	4.31 b	4.40 e	4.04 d
Rambler	1.96 f	3.04[2] c	4.14[2] b	3.64[2] f	3.20 e
Yearly Averages	4.10	4.26	5.15	4.90	4.61
Coefficient of Variation	5.3%	8.1%	6.5%	6.4%	

[1] Means followed by a common letter do not differ significantly at the 5% level; means not followed by a common letter are considered to be different by Duncan's New Multiple Range Test.

[2] 50% or more crabgrass.

Date of Establishment: October 15, 1960.
Seeding Rate: 30 lbs./acre, broadcast.
Experimental Design: Randomized complete block (6 replicates).
Plot Size: 5' x 20' (3' x 18' harvested).
Soil Analysis prior to establishment:

	Topsoil	Subsoil
pH	6.6	6.1
P	High	Low
K	Med.	Med.

Fertilization at Seeding: 1000 lbs. dolomitic limestone; 500 lbs. superphosphate; 800 lbs. 4-12-12.
Annual Maintenance Fertilization: 800 lbs. 0-10-20 with B.
Insecticide Treatments: 1961-1963: annual applications of heptachlor in fall.
1964: none
Feb. 22, 1965: guthion. Heavily infested with weevils. Feeding on early regrowth of Atlantic and Oklahoma Common severe.
Harvests: 1961-1963: harvested when most of the varieties were at the 1/10-bloom stage.
1964: each variety harvested when it reached the 1/10-bloom stage.

Table 84. Alfalfa Management Study, Simpson Experiment Station (Anderson County) - Clemson University, South Carolina - 1961-1964[1/]

Seeding rate (lbs./A)	Seeding method	Yield per acre in tons of oven-dry forage[2/] 1961	1962	1963	1964	Average (1961-64)
30	Broadcast	4.61 a	4.26 a	5.20 a	4.90 a	4.74 a
30	Drilled-7" rows	4.53 a	4.32 a	5.14 ab	4.89 a	4.72 a
30	Cross-drilled-7"rows	4.68 a	4.04 ab	5.21 a	4.41 ab	4.58 ab
15	Cross-drilled-7"rows	4.47 a	4.16 a	5.18 a	4.40 ab	4.55 ab
15	Broadcast	4.43 ab	4.22 a	5.10 ab	4.32 ab	4.52 ab
15	Cross-drilled-14"rows	4.08 b	4.01 ab	4.79 bcd	4.62 ab	4.42 bc
30	Cross-drilled-14"rows	4.11 b	3.91 ab	4.95 abc	4.49 ab	4.36 cd
15	Drilled-7" rows	4.11 b	3.92 ab	5.12 ab	4.17 ab	4.33 d
30	Drilled-14" rows	3.57 c	3.69 bc	4.70 cd	4.40 ab	4.09 e
15	Drilled-14" rows	3.43 c	3.44 c	4.52 d	3.95 b	3.83 f
Yearly Averages		4.20	4.00	4.99	4.46	4.41
Coefficient of Variation		6.1%	7.4%	5.5%	12.0%	3.9%

Interactions: Varieties x Treatments - Calc. F. = 4.71 $P_{(.005)} = 2.00$

Varieties x Years - Calc. F. = 11.75 $P_{(.005)} = 2.64$

Years x Treatments - Calc. F. = 5.23 $P_{(.005)} = 2.14$

1/ Tests conditions given with the variety test data (South Carolina) are also applicable to this test.

2/ Means followed by the same letter do not differ significantly at the 5% level; means not followed by a common letter are considered to be different by Duncan's New Multiple Range Test.

Table 85. 1961-1964 Regional Alfalfa Variety Test; Seeded Fall 1960

Variety	Average	1961	1962	1963	1964
		Tons of air-dry hay per acre			
N.C. Syn. G(57)3	3.81	3.46	5.11	4.76	1.92
N.C. Syn. F(56)1	3.78	2.82	5.14	4.96	2.22
Buffalo	3.75	3.10	4.39	5.12	2.38
Williamsburg	3.71	2.88	4.60	5.13	2.22
N.C. Syn. G(57)2	3.70	2.96	4.66	5.03	2.15
N.C. Syn. E(58)	3.66	2.87	4.46	5.17	2.16
Socheville	3.64	3.10	5.02	4.57	1.89
DuPuits	3.61	2.90	4.80	4.76	1.98
Narragansett	3.53	3.22	4.21	4.84	1.84
P.A.G. FD-100	3.42	3.24	4.32	4.44	1.70
Ranger	3.36	2.44	3.95	5.10	1.97
Lahontan	3.26	2.52	3.27	4.74	2.52
Zia	3.26	1.97	4.27	4.54	2.28
Vernal	3.25	2.40	3.86	4.86	1.87
Maliani	3.23	2.71	3.62	4.39	2.20
Rhizoma	3.23	3.14	3.68	4.38	1.73
L.S.D. (.05)	—	0.67	0.57	0.40	0.28
C.V. %	—	16.4	9.4	5.8	10.5

Design: Randomized complete block, four replications.
Date seeded: Sept. 16, 1960, broadcast seeding at 20 pounds per acre.
Soil type: Cumberland loam (2% to 5% slopes).

Table 86. UNIFORM ALFALFA TRIAL - NE28

Location: Hopkins Farm, Fairland, Md.
Soil Type: Chillum Silt Loam
Planting Date: 9-2-60

Design: R.C.B. with 6 reps.
Plot Size: 5 x 20 ft.
Method of Planting: Broadcast
Management: 4 cuttings; 5-19, 6-23, 7-28, 9-1

Entry	Season Yields					
	Tons/Acre 12% Moisture				4 yr.	% of
	1961	1962	1963*	1964	Avg.	Checks**
New York Syn A	5.31	4.43	4.56	3.99	4.57	101
Cayuga	5.15	4.69	4.62	4.10	4.64	102
Saranac	5.93	4.65	4.77	4.10	4.86	107
High Seed Narragansett	5.36	4.30	4.50	3.98	4.54	100
Wilt Resistant Narragansett	5.17	4.39	4.49	4.01	4.52	100
Narragansett	5.43	4.49	4.60	4.14	4.66	103
Atlantic	5.38	4.62	4.70	4.13	4.71	104
DuPuits	5.89	4.68	4.54	3.85	4.74	104
Vernal	5.32	3.96	3.97	3.65	4.22	93
Mean	5.44	4.47	4.53	4.00	4.61	

* Only 3 harvests taken.
** Average of Narragansett, DuPuits, and Vernal

Table 87. UNIFORM ALFALFA TRIAL - NE28

Location: Hopkins Farm, Fairland, Md.
Soil Type: Chillum Silt Loam
Planting Date: 9-2-60

Design: R.C.B. with 6 reps.
Plot Size: 5 x 20 ft.
Method of Planting: Broadcast
Management: 3 cuttings 6-3, 7-18, 9-1

Entry	Season Yields					
	Tons/Acre 12% Moisture				4 yr.	% of
	1961	1962	1963	1964	Avg.	Checks*
New York Syn A	5.14	4.21	4.91	3.86	4.53	105
Cayuga	4.81	4.16	4.98	3.65	4.40	102
Saranac	5.39	4.37	5.30	3.95	4.75	110
High Seed Narragansett	5.22	4.11	5.00	3.42	4.44	103
Wilt Resistant Narragansett	5.17	4.00	4.76	3.63	4.39	102
Narragansett	5.05	4.09	4.82	3.53	4.37	101
Atlantic	4.85	4.29	5.29	3.60	4.51	104
DuPuits	5.19	4.18	4.84	3.54	4.44	103
Vernal	4.92	3.87	4.49	3.36	4.16	96
Mean	5.08	4.14	4.93	3.61	4.44	

* Average of Narragansett, DuPuits, and Vernal.

Table 88. UNIFORM ALFALFA VARIETY TRIAL

Location: Forage Farm, Clarksville
Planting Date: September 4, 1963
Plot Size: 6 x 20 ft.
Design: R.C.B with 4 reps.
Soil Type: Wickham Silt Loam
1964 Data

Entry	Forage Yield T/A Dry Matter				% Stand		
	5-26 *	7-10	8-25	Total	10-1-63	4-10-64	1963-1964 Change
Moapa	1.24	.56	.34	2.14	76	61	-15
Ranger	1.50	.90	.40	2.80	74	70	-4
525	1.78	.99	.49	3.26	71	72	+1
Narragansett	1.60	1.01	.45	3.06	65	66	+1
Cherokee	1.40	.87	.37	2.64	51	60	+9
504	1.52	.96	.44	2.92	62	68	+6
WL 202	1.79	1.05	.55	3.39	74	72	-2
X583	1.73	1.21	.57	3.51	66	81	+15
AS13	1.36	.92	.46	2.74	76	65	-11
Vernal	1.58	.98	.48	3.04	65	62	-3
Cayuga	1.69	1.01	.51	3.21	65	70	+5
Atlantic	1.61	1.04	.51	3.16	66	71	+5
Caliverde	1.35	.88	.48	2.71	65	58	-7
FD 100	1.82	1.08	.50	3.40	64	75	+11
Haymor	1.50	.93	.50	2.93	71	68	-3
Arnim	1.66	1.03	.53	3.22	69	72	+3
DuPuits	1.78	1.16	.58	3.52	80	80	0
Cardinal	1.68	1.14	.59	3.41	74	78	+4
Williamsburg	1.38	.86	.43	2.67	68	61	-7
Zia	1.41	.93	.43	2.77	68	65	-3
WL 304	1.79	1.06	.54	3.39	78	76	-2
WL 303	1.76	1.08	.66	3.50	68	64	-4
Glacier	1.88	1.20	.56	3.64	68	71	+3
Buffalo	1.57	.98	.57	3.12	69	60	-9
WL 301	1.71	1.09	.65	3.45	71	70	-1
Culver	1.76	.90	.44	3.10	69	61	-8
Cody	1.53	.96	.55	3.04	70	64	-6
Warrior	1.68	1.13	.47	3.28	68	79	+11
Mean	1.61	1.00	.50	3.11	69	68	
L.S.D. 5%	.25	.16	.14				
1%	.34	.22	.18				
C.V. %	9.6	11.8	19.6				

5-26 *
*Three reps. harvested

Table 89. UNIFORM ALFALFA VARIETY TRIAL

Location: Forage Farm, Clarksville
Planting Date: September 4, 1963
Plot Size: 6 x 20 ft.
Design: R.C.B. with 4 reps
Soil Type: Wickham Silt Loam
1964 Data

Entry	Vigor[1] 10-1-63	Recovery[1] 6-8-64	Leafspot[2] 7-10-64
Moapa	1.8	2.8	6.2
Ranger	5.5	6.5	5.0
525	6.5	6.8	4.0
Narragansett	6.2	7.0	5.2
Cherokee	8.5	7.0	3.5
504	6.2	6.0	6.2
WL 202	5.5	7.5	5.0
X583	4.0	3.0	5.8
ASl3	1.0	3.5	7.0
Vernal	7.5	7.8	4.8
Cayuga	5.8	6.2	3.8
Atlantic	5.2	5.5	6.5
Caliverde	5.5	5.2	6.0
FD 100	6.0	3.5	6.5
Haymor	5.0	4.8	6.8
Arnim	5.0	5.2	5.8
DuPuits	3.0	2.5	7.2
Cardinal	4.0	3.2	5.5
Williamsburg	5.2	5.8	5.8
Zia	5.0	5.8	5.2
WL 304	4.0	5.5	5.0
WL 303	5.5	4.8	4.2
Glacier	4.0	3.5	7.2
Buffalo	4.8	5.5	4.5
WL 301	4.5	5.5	5.5
Culver	6.5	6.5	4.8
Cody	4.5	5.8	5.8
Warrior	4.8	3.8	6.2
Mean	5.0	5.3	5.5
L.S.D. 5%	1.3	1.2	N.S.
1%	1.8	1.6	N.S.
C.V. %	19.1	16.4	30.0

1. Rated 1-9: 1 = best, 9 = poorest
2. Rated 1-9: 1 = least prevalent, 9 = most. Mostly Pseudopeziza.

Table 90. NE-28 Alfalfa Varieties and Synthetics Test-1960
Location: Ithaca, N.Y. - Pulleyn 1964 Data

Mgt. : 3 cut, severe			Total Yield - T/A - 12% Mositure			
Random Number	Entry	N.Y. No.	1st cut 5/25	2nd cut 7/8	3rd cut 8/17	Season Total
1	N.Y. Syn. A	60-18	1.55	.90	.84	3.30
2	N.Y. Syn. B	60-19	1.46	.85	.83	3.14
3	H.S. Narrag.	60-20	1.62	.98	.83	3.42
4	W.R. Narrag.	60-21	1.62	.93	.84	3.39
5	W.R. Flemish	60-22	1.56	.93	.80	3.29
6	Atlantic	60-27	1.43	.83	.71	2.98
7	Narrag.	60-14	1.54	.88	.77	3.19
8	Vernal	60-26	1.40	.84	.75	2.99
9	DuPuits	60-17	1.26	.62	.45	2.34
	Ave.		1.49	.86	.76	3.12
	F-Varieties		3.65**	3.57**	6.96**	5.26**
	L.S.D. (P=.05)		.17	.15	.13	.41
	C.V. (%)		10.0	15.4	15.0	11.4

Mgt. : 3 cut, normal		1st cut 6/9	2nd cut 7/23	3rd cut 9/11	Season Total
1	N.Y. Syn. A	1.57	1.19	.48	3.24
2	N.Y. Syn. B	1.77	1.41	.51	3.68
3	H.S. Narrag.	1.73	1.45	.67	3.85
4	W.R. Narrag.	1.79	1.39	.45	3.64
5	W.R. Flemish	1.64	1.33	.44	3.41
6	Atlantic	1.52	1.18	.40	3.10
7	Narrag.	1.55	1.29	.45	3.28
8	Vernal	1.64	1.35	.52	3.51
9	DuPuits	1.05	.65	.33	2.03
	Ave.	1.59	1.25	.47	3.31
	F-Varieties	4.97**	7.07**	1.27-	6.03**
	L.S.D. (P=.05)	.28	.26	.23	.61
	C.V. (%)	15.3	18.0	43.8	16.1

Table 91. NE-28 Alfalfa Varieties and Synthetics Test-1960
Location: Westown, N.Y. (Orange Co.) 1964 Data

Mgt.: 3 cut, normal

Random Number	Entry	1st cut 6/11	2nd cut 7/25	3rd cut 9/9	Season Total
1	N.Y. Syn. A	2.22	1.26	.57	4.04
2	N.Y. Syn. B (Cayuga)	2.26	1.37	.63	4.20
3	H.S. Narrag.	2.17	1.20	.52	3.89
4	W.R. Narrag.	2.16	1.24	.56	3.96
5	W.R. Flemish (Saranac)	1.61	1.12	.49	3.42
6	Atlantic	2.08	1.16	.51	3.75
7	Narrag.	1.69	.98	.39	3.07
8	Vernal	2.29	1.19	.51	3.99
9	DuPuits	.87	.26	.04	1.17
	Ave.	1.94	1.09	.47	3.50
	F-Varieties	31.6**	31.3**	22.2**	39.28**
	L.S.D. (P=.05)	.23	.17	.10	.42
	C.V. (%)	14.2	18.7	27.1	14.8

Notes: (1) Both managements included in 1964 data. Good early growth, but drouth cut 3rd harvest yield.

(2) Wilt symptoms still showing up; they were first observed 2 years ago in lower portion of test and have spread out. DuPuits is only entry that is really gone, however.

(3) Vernal and Syn. A. appeared to have best stands; Cayuga, H.S.N. and W.R.N. next.

Table 92. NE-28 Alfalfa Variety and Synthetics Trial - 1960
Location: Smyrna, N. Y. 1964 Data

One Management Only: 2 cuts/season			Total Yield -- Tons/ Acre (12% M)			Composition	
Random Number	Entry	N. Y. No.	1st cut 6/25	2nd cut 8/16	Season Total	% Legume 6/25	% D.M. 6/25
1	N.Y. Syn. A	60-18	3.71	1.21	4.92	63	29.0
2	N.Y. Syn. B	60-19	3.53	1.27	4.80	63	28.9
3	H.S. Narrag.	60-20	3.71	1.51	5.22	84	27.6
4	W.R. Narrag.	60-21	3.61	1.44	5.05	83	28.0
5	W.R. Flemish	60-22	3.56	1.49	5.05	93	28.2
6	Atlantic	60-27	3.44	1.31	4.75	72	28.1
7	Narrag.	60-14	3.59	1.29	4.88	75	28.5
8	Vernal	60-26	3.45	1.20	4.65	60	27.8
9	Du Puits	60-17	3.36	1.25	4.61	89	28.7
	Ave.		3.55	1.33	4.88	76	28.3
	F-Varieties		1.69 -	6.50**	3.45**		.87-
	L.S.D. (P=.05)		.26	.13	.31		1.5
	C.V. (%)		9.1	12.1	7.7		6.4

Note: This trial has 12 replications. H.S. Narragansett was excellent at the time of second harvest - this is reflected in yield. Saranac also looked good, but had slightly less stand. DuPuits had appreciable number of plants with wilt symtoms. Performance of Vernal and Cayuga still influenced by competition level and its effect in initial stands under this environment.

Table 93.- NE 28 Alfalfa Variety and Synthetic Trial - 1960 Series. Broadcast plots (5' x 18'). Split plot design; main plot-cutting managements, sub-plot-varieties, 6 reps. Seeding rate 50 viable seeds per square foot. Seeded May 4, 1960. Location - Centre Hall, Pa.

		Yield in Tons of Dry Matter per Acre							
		Severe Management				Moderate Management			
Variety	Cuts	1961 3	1962 2	1963 3	Ave. 8	1961 3	1962 2	1963 3	Ave. 8
NY Syn A		4.08	2.00	4.32	3.47	4.28	2.11	4.25	3.55
NY Syn B (Cayuga)		4.12	2.15	4.25	3.51	4.43	2.25	4.26	3.65
H.S. Narragansett		4.08	2.30	4.45	3.61	4.57	2.17	4.69	3.81
W.R. Narragansett		4.20	2.21	4.60	3.67	4.32	2.27	4.46	3.68
W.R. Flemish (Saranac)		4.39	2.32	4.35	3.69	4.70	2.54	4.57	3.94
Atlantic		4.00	2.14	4.48	3.54	4.33	2.26	4.48	3.69
Narragansett		4.34	2.07	4.49	3.63	4.51	2.35	4.23	3.70
Vernal		4.14	1.99	4.16	3.43	4.43	2.27	4.48	3.73
DuPuits		4.38	2.29	4.26	3.64	4.49	2.21	4.14	3.61
LSD (.05)		0.28	0.25	0.42	—	0.31	0.24	0.39	—
C.V. %		5.8	9.9	8.3	—	6.3	9.3	7.8	—

Note: Both managements same in 1963. Stands variable since second harvest year and cutting pressure relatively light due to droughts (only two cuttings possible in 1962).

PENNSYLVANIA - Centre Hall, Clarion and Ligonier

Table 94 - Alfalfa Variety Trials, 1961 Series. Broadcast Plots (5' x 20'). Randomized block - 6 reps. Seeding rate - 50 viable seeds per square foot. Seeded May 1961.

			Yields in Tons of Dry Matter per Acre											
			Centre Hall, Pa.				Clarion, Pa.				Ligonier, Pa.			
Random No.	Variety	Cuts	1962 2	1963 3	1964 3	Ave. 8	1962 3	1963 3	1964 3	Ave. 9	1962 3	1963 3	1964 4	Ave. 10
1	Alfa		2.34	4.79	3.71	3.46	3.23	3.94	0.88	2.69	3.51	3.32	3.54	3.46
2	Arnim		2.17	4.72	4.10	3.49	3.16	3.56	0.68	2.47	3.15	2.98	3.39	3.17
3	Buffalo		1.65	4.22	3.45	2.93	2.97	3.28	3.23	3.16	2.56	2.38	2.83	2.58
4	Cayuga		2.01	4.51	3.94	3.36	3.18	4.05	4.34	3.86	2.84	2.77	3.09	2.90
5	Cody		1.94	4.48	3.52	3.16	2.94	3.66	3.73	3.45	2.54	2.47	2.92	2.64
6	Culver		2.23	5.14	3.88	3.57	3.06	4.25	4.71	4.01	2.85	2.98	3.37	3.06
7	DuPuits		2.30	4.69	4.25	3.54	3.47	3.67	0.88	2.67	3.38	2.72	3.20	3.10
8	Narragansett		2.14	4.85	4.30	3.58	3.07	4.40	3.73	3.73	3.28	3.31	3.83	3.47
9	Tuna		2.07	4.39	4.14	3.38	----	----	----	----	----	----	----	----
10	Vernal		2.22	4.84	3.62	3.39	3.06	4.06	4.26	3.80	3.33	3.14	3.59	3.35
LSD (.05)			0.27	0.40	0.33	0.29	0.18	0.42	0.54	0.40	0.18	0.33	0.48	0.39
C.V. %			11.3	6.2	7.6	8.6	5.1	9.6	9.2	10.8	5.3	10.0	5.1	11.2

Table 95. - Alfalfa Variety Trial, 1961 Series, including birdsfoot trefoil varieties, creeping rooted alfalfa varieties, and standard alfalfa varieties. Broadcast plots (5' x 20'). Randomized block - 6 reps. Seeding rate - 50 viable seeds per square foot. Seeded May 15-18, 1961. Location - Centre Hall, Pa.

Variety	Species	Cuts	Yields in Tons of Dry Matter/Acre 1962 2	1963 3	1964 3	Ave. 8
U.S. Past. Lab. Creep. Rt. Syn.	Alf.		1.13	3.57	2.69	2.46
Teton	Alf.		1.74	4.37	3.50	3.20
Rambler	Alf.		1.57	3.83	2.67	2.69
Narragansett	Alf.		2.07	4.26	3.58	3.30
Vernal	Alf.		2.05	4.50	3.48	3.34
Viking	B.F.T.		1.29	3.43	2.22	2.31
Mansfield	B.F.T.		1.13	3.15	2.07	2.12
Empire	B.F.T.		0.92	2.92	1.61	1.82
Morshansk Select.	B.F.T.		1.15	3.41	2.16	2.24
L.S.D. (.05)			0.20	0.23	0.25	0.13
C.V. %			11.7	5.4	8.2	13.1

Table 96. - Alfalfa Variety Trials, 1962 Series. Broadcast Plots (5' x 20'). Randomized block - 6 reps. Seedling rate - 62 viable seeds per square foot. Seeded April 25-30, 1962

		Yield in Tons of Dry Matter/Acre					
		Centre Hall, Pa.			Landisville, Pa.		
		1963	1964	Ave.	1963	1964	Ave.
Varieties	Cuts	3	3	6	3	3	6
DuPuits		3.71	3.07	3.39	2.40	3.20	2.80
Alfa		3.63	3.15	3.39	2.40	3.23	2.81
Glacier		3.71	3.12	3.41	2.47	3.17	2.81
Haymor (N9502)		3.49	2.96	3.22	2.42	3.25	2.83
Warrior (N0507)		3.85	3.16	3.50	2.78	3.47	3.12
Orchies		3.52	2.88	3.20	2.13	2.96	2.54
Cardinal		3.63	3.12	3.37	2.49	3.12	2.80
Europe		3.71	3.18	3.44	----	----	----
LSD (.05)		0.19	N.S.	0.16	0.24	N.S.	0.19
C.V. %		4.6	7.7	8.6	8.4	8.6	8.6

Table 97. - Alfalfa Variety Trials, 1962 Series. Broadcast plots (5' x 20'). Randomized Block - 6 reps. Seeding Rate - 62 viable seeds per square foot. Seeded April 25-30, 1962.

		Yield in Tons of Dry Matter/Acre					
		Centre Hall, Pa.			Landisville, Pa.		
		1963	1964	Ave.	1963	1964	Ave.
Varieties	Cuts	3	3	6	3	3	6
Culver		3.64	3.27	3.46	2.53	2.84	2.68
Cayuga		3.71	3.31	3.49	2.50	3.06	2.78
Cherokee		3.77	3.18	3.44	2.80	3.23	3.01
Uinta		3.48	2.35	3.21	2.49	2.99	2.73
Tuna		3.42	3.45	3.44	2.50	2.80	2.65
Arnim		3.86	3.40	3.63	2.88	3.22	3.05
W 58 (Wyoming)		2.88	2.72	2.80	2.29	2.67	2.47
W 60A (Wyoming)		3.28	2.89	3.06	2.54	2.98	2.75
Cody		3.01	2.83	2.92	2.13	2.93	2.53
DuPuits		4.07	3.45	3.73	2.72	3.30	3.01
Narragansett		4.07	3.73	3.88	2.53	2.95	2.74
Buffalo		3.33	2.80	3.04	2.13	2.64	2.38
Vernal		3.98	3.20	3.59	2.83	3.24	3.03
525 (Arnold Thomas)		4.08	3.52	3.80	3.03	3.26	3.14
W 60B (Wyoming)		3.40	3.28	3.33	2.48	3.05	2.76
LSD (05)		0.29	0.33	0.30	0.25	0.26	0.18
C.V. %		6.6	9.2	6.5	8.8	7.7	11.4


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